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ABSTRACT

The effects of postsecondary experiences on the development of young people's aspirations, attitudes, and self-conceptions during their first four years after high school were studied. Attention was directed to self-esteem; orientations toward work, family, and community; sex-role attitudes; educational expectations; career aspirations; satisfaction with career progress; and locus of control. The source of data was the National Longitudinal Study (NLS) of the High School Class of 1972, a large panel study of more than 22,000 high school seniors. To determine the effects of career and educational choices on the outcomes of education, comparisons were undertaken of groups that entered different postsecondray tracks following high school graduation, including some type of postsecondary education, entry into the civilian labor force, military service, full-time homemaking, and unemployment. An individual effects model was used to adjust observed outcomes over a four-year period for initial differences in ability, high school achievement, family background, and other factors. In addition, changes in outcome measures over time were analyzed, based on a different set of assumptions. Theoretical perspectives concerning the self-concept and its relationship to life choices made in young adulthood are briefly considered, and the NLS database and study methodology, including the development of the Career Aspiration Index, are examined. The main finding is that the initial differences between young people who enter various postsecondary tracks are generally much greater than relative changes that emerge thereafter. Postsecondary experience generally had less effect on attitudes and aspirations than the factors that led to their initial choices. A bibliography is appended. (SW)

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William Lisowski, and Peter A. Morrison

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PREFACE

This report presents the results of a study of the effects of postsecondary experiences on the development of young people's aspirations, attitudes, and self-conceptions during their first four years after high school. The dependent variables considered in this study include self-esteem; orientations toward work, family, and community; sex-role attitudes; educational expectations; career aspirations; satisfaction with career progress; and locus of control (people's perceptions of whether they themselves or external factors largely determine their destinies). The analysis is based on a large panel study known as the National Longitudinal Study of the High School Class of 1972 (NLS), which has tracked more than 22,000 young people who are now in their mid-twenties. The research was supported by Contract No. 300-78-0547 from the U.S. Department of Health, Education, and Welfare, Office of Education, National Center for Education Statistics.

The findings should be of interest to a broad audience, including government policymakers, the research community, and those involved in educational and career counseling in the secondary schools.

SUMMARY

As young people complete their high school education, they are faced with a number of key decisions that will affect their lives for many years to come. Among the most important are decisions regarding future education and training, entry into the labor force, and family formation. These decisions are critical not only in shaping the courses of their lives but also in helping them to establish an identity—a sense of who they are and what they can become.

Public policy is concerned with the process by which young people make important life decisions and with the consequences of those decisions. Many federal programs are designed to smooth the transition from school to work, expand or equalize educational and career opportunities, and ease the burden of unemployment. Yet very little is known about the quality of the experiences such programs are designed to affect.

The purpose of this study is to examine the effects of various postsecondary choices on short-range outcomes associated with the development of aspirations, attitudes, and self-conceptions. These outcomes include self-esteem, locus of control, value orientations, sex-role attitudes, expected educational attainment, career aspirations, and satisfaction with career progress. To determine the effects of postsecondary choices on these outcomes, we compare groups that entered various postsecondary "tracks" following high school graduation: continued education (four-year college, community college, or vocational-technical school); entry into the civilian labor force (full-time or part-time); military service; full-time homemaking; and unemployment.

The source of data for this study was the National Longitudinal Study (NLS) of the High School Class of 1972, a large panel study of more than 22,000 high school seniors who were the subject of follow-up surveys in 1973, 1974, and 1976. Most of the outcomes were measured during the base-year survey and on all three follow-ups.

The longitudinal nature of the NLS and the richness of the background information permit us to distinguish the effects of postsecondary choices from the differences that led to those choices in the first place. Young people who enter various postsecondary tracks differ markedly in their background characteristics. Because some of these background factors are correlated with the outcome measures under study, their effects must be separated from those of postsecondary track. To help us make this separation, we use an individual effects model that permits us to adjust observed outcomes over a four-year period for initial differences in ability, high school achievement, family background, and the like. Mean differences in these adjusted outcomes reflect the average effects associated with choosing one track over another, after background differences have been taken into account.

Our main finding is that the initial differences between young people who

enter various postsecondary tracks are generally much greater than relative changes that emerge thereafter. This finding holds even after we have controlled for numerous background variables. Thus, differences in the typical experiences that young people have in various postsecondary activities do not, in general, have as great an effect on their attitudes and aspirations as the factors that led up to their initial choices. It is possible that the initial differences across tracks result from differences in variables that are not measured in the NLS. It is also possible that initial differences in outcomes represent track effects of a different kind from those examined in our analysis—e.g., effects associated with *deciding* on a particular postsecondary track rather than those associated with actually entering that track. Because the choice of postsecondary activity is often made well before the end of the senior year, most of the effects associated with the postsecondary choices may already be reflected in the base-year measures.

Although the track effects that we detected were generally quite small, our analyses nonetheless revealed several noteworthy findings:

- Young people who entered college or vocational-technical school, and men who entered military service, sharply increased their expected educational attainment during the first 16 months after high school graduation; those who entered the labor force did not. These track differences occurred only between the base year and the first follow-up survey, suggesting that there is something about the early experiences involved in postsecondary schooling and military service that increases the perceived attractiveness or feasibility of obtaining further education.
- The class of 1972 had unrealistically high career aspirations; more than 40 percent of all NLS participants aspired to careers as professionals at the time of the base-year survey. Our analysis revealed marked differences in aspirations by postsecondary track throughout the four years covered by the survey. Not surprisingly, college-bound seniors began with higher aspirations than those who entered the labor force. The gap between these two groups widened during the first year covered by the survey, but narrowed thereafter, with both groups showing a general decline in aspirations over the last three years. Many young men who entered the military acquired professional aspirations sometime during the first year covered by the survey; as a group, young men in military service maintained higher aspirations than workers over the course of the four years.
- Men who entered the full-time labor force or engaged in military service displayed more rapid gains in their sense of personal control over their lives than those who attended college. On-the-job experience or financial independence may have provided many of these young men with a greater sense of personal competence than college students were able to find in continuing their student roles.
- Women's aspirations and attitudes are more dependent than men's on

marriage and parenthood. Although young people of both sexes tend to lower their educational expectations and career aspirations after they marry or become parents, women decrease theirs more. Women's role orientations (attitudes toward work and family) also change more sharply in response to marriage and parenthood. In general, the results underscore the obvious importance of taking account of the special contingencies that exist between family and career choices for women.

The above exceptions notwithstanding, the bulk of the evidence in the study points to the conclusion that, for the most part, the divergence of aspirations, attitudes, and self-conceptions takes place before high school graduation. Almost any categorization of the NLS seniors—by sex, race, ability, socioeconomic status, or high school curriculum—leads to clear-cut differences across categories in the measures considered here. This diversity across subpopulations, reported here as a by-product of our research, raises questions about the genesis of these differences—which, in spite of voluminous prior research, has yet to be thoroughly explained.

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I. INTRODUCTION

This report treats the development of self-concept among American youth by examining how aspirations and attitudes are affected by important life choices made during late adolescence and early adulthood. The analysis is based on the National Longitudinal Study of the High School Class of 1972 (NLS), a large-scale longitudinal survey of more than 22,000 young people. The NLS was originally designed to provide comprehensive data for addressing critical issues in educational policy, but it has since taken on broader significance as a rich data base that can support research on many issues that affect the nation's youth.

The ages encompassed by the NLS data (17 to 22) mark a time of transition from the dependence of childhood and adolescence to adult independence. During this period, most young people leave their parents' homes and begin the task of choosing and preparing for their adult roles. It is often a time of exploration in which the young person attempts to define and develop skills and interests and match them to the long-term options that are available.

The transition from adolescence to adulthood is multidimensional and is characterized by a complex set of contingencies. During this time, the young person is likely to make several key decisions that will shape his or her life for many years to come. Among the most critical are decisions regarding future education and training, entry into the labor force, and family formation. Choices in these areas are interconnected and often sequential. Whether wittingly or unwittingly, young people may foreclose later options through their present choices. The decision to marry may reduce the chance for continuing education; a decision to forgo postsecondary education may preclude entry into many occupations.

Growth and change in the young person's self-concept form an integral part of the passage into adulthood, for critical decisions about one's future life amount to choosing an identity. This process is iterative; each choice in the sequence is influenced by the person's existing self-concept, and in turn, shapes its further development. The emergence of a positive and realistic sense of self is therefore critical to successful passage into adulthood. Young people who come to view themselves negatively may overlook or reject options that are realistically open to them; those whose self-assessments are unrealistic may misdirect their energies into activities and choices that do not reflect their true interests and abilities.

Public policies that affect youth are concerned with the processes by which young people make critical life decisions and with the consequences of those decisions. Numerous federal programs are aimed at expanding or equalizing educational and career opportunities for certain groups, such as women and disadvantaged minorities. Yet very little is known about what determines

these choices or what consequences follow from them. A variety of other programs are aimed at smoothing the transition from school to work or at easing the burden of unemployment. However, so little is known about the problems associated with transitions or discontinuities in employment that we can neither judge the effectiveness of existing programs nor anticipate the likely effects of new ones. Research based on NLS data can help fill the gaps in our knowledge.

Finally, the findings of research may enable young people to choose more effectively among the options available to them. For example, a college degree may be an investment whose value has diminished. If so, some who choose to go to college may be choosing ineffectively. The information provided by NLS data on the experiences of a recent cohort of college-age youth provides valuable insights into the prospects and problems associated with entering college, taking a job, or following other postsecondary pursuits.

It is important to recognize that the NLS is necessarily limited in its capacity to inform us about long-term outcomes of educational and career choices. These outcomes are revealed only gradually, as people's lives unfold. The real strength of the NLS lies instead in its capacity to register and describe how these choices impinge on the initial passage into adulthood.

In this analysis, we focus on short-range outcomes associated with the young person's developing sense of self, a topic about which there has been little comparable research. Many studies have examined how young people's decisions during this period are shaped by their abilities, backgrounds, and expectations. There has also been considerable emphasis on how these decisions affect later outcomes. But the outcomes examined are usually objective ones such as income, marital stability, occupational status, and fertility, rather than subjective ones such as happiness, career satisfaction, and sense of competence. Our concern is primarily with these subjective outcomes. Specifically, these include: self-esteem; locus of control; attitudes toward work, family, and community; sex-role attitudes; expected educational attainment; career aspirations; and satisfaction with career progress.

To determine the effects of career and educational choices on these outcomes, we compare groups that entered different postsecondary "tracks" following high school graduation. These include: continued education (four-year college, community college, or vocational-technical school); entry into the civilian labor force (full-time or part-time); military service; full-time homemaking; and unemployment. We use an individual effects model that permits us to adjust observed outcomes over a four-year period for initial differences in ability, high school achievement, family background, and the like. Differences in the mean adjusted outcomes across tracks reflect the average effects associated with choosing one track over another, after controlling for differences in background variables.

In essence, our individual effects analysis compares changes in outcomes over a four-year period for separate categories of young people, grouped according to the track they began pursuing shortly after high school. Of course, young people do not always persist in the same track throughout the four years. Some

leave school to enter the labor force, others complete their military service and take civilian jobs, and so on. But most pursue their initial choice long enough for that choice to have enduring effects on their lives—effects that we shall try to assess.

To supplement our analysis of individual effects, we also report an analysis of changes in the outcome measures over time—an analysis based on a different set of assumptions. The two analyses are complementary, each providing a different perspective on the effects of postsecondary choices.

The remainder of this report is divided into four sections. Section II presents a brief theoretical discussion of the self-concept and its relationship to life choices made in young adulthood. Section III describes the NLS data base, defines postsecondary tracks, lists and describes outcome variables, and summarizes the statistical methodology used to estimate individual effects. Section IV presents the results of our individual effects analysis, and our analysis of changes in outcome measures over time. Finally, Section V discusses the implications of our findings.

II. THE SELF-CONCEPT: DIMENSIONS AND RELATIONSHIP TO LIFE CHOICES

A person's concern with who he or she is takes many forms and has many consequences. Self-conceptions play a role in what a person chooses to do and what he or she expects out of life. Beliefs regarding personal abilities, characteristics, and values can help to determine how people choose to allocate their energies and how they interpret their outcomes. For example, people who believe that they lack ability have little reason to try for success—or, if they do occasionally succeed, may dismiss the success as due to luck or some other factor (Weiner, 1974). Similarly, people who believe that what happens to them is largely beyond their personal control are unlikely to form long-term plans in order to get what they want; assuming they lack personal efficacy, they see little point in such a strategy.

It is frequently claimed that unfavorable self-conceptions lie at the heart of the problems experienced by many groups in their struggle to attain social and economic equality. When a person has internalized an identity in which the possibility of economic advancement or achievement does not figure, interventions from the outside intended to promote such achievement meet with little success unless they can also modify the person's view of what is possible.

Just as the effects of restricted self-conceptions may be crippling for some people, a healthy self-concept may enhance life chances for others. Those who view themselves in a way that permits achievement, growth, and change may, as a result, stand a better chance of experiencing those things, simply because they allow for the possibility. People who believe that they can attain a great deal are likely to attempt a great deal, and making an attempt is often a necessary (if not always sufficient) ingredient of success.

Whether positive or negative, open or restricted, the self-concept embodies the meaning the person assigns to his or her past and delineates the possibilities foreseen for the future. Partly for this reason, behavioral scientists have long sought to understand the nature of the self-concept, how it develops, and under what conditions it is likely to change. Below, we describe several dimensions of the self-concept that are pertinent to the subject of this report.

DIMENSIONS OF THE SELF-CONCEPT

Theorists have approached the construct of the self-concept in different ways. Some—perhaps the majority—have focused on its most general evaluative component, the individual's overall liking for himself or herself (self-esteem). Others, however, have focused on more specific evaluations or on dimensions somewhat removed from the purely evaluative, such as self-consis-

tency and locus of control. Finally, certain aspects of the self-concept, such as role identity or aspirations, have become objects of study in their own right, quite apart from any attempts to integrate them with an overall self-concept theory.

The analysis presented in this report encompasses several disparate dimensions of the self-concept. Following Rosenberg (1979, p. 7), we define the self-concept to refer to "the totality of the individual's thoughts and feelings having reference to himself as an object." This usage is much broader than that implied by the frequent interchangeability of the terms "self-concept" and "self-esteem" in the literature. The self-concept in this larger sense encompasses all the beliefs, both evaluative and nonevaluative, that the individual might hold about himself. The person's generalized self-esteem is, of course, one part (but only one) of his or her self-concept. The self-concept also includes the person's knowledge and beliefs about specific traits, abilities, values, and aspirations. Below we describe the dimensions of the self-concept to which this report is addressed.

Self-Esteem

Self-esteem generally refers to a liking and respect for oneself. It may be the single most important aspect of the self-concept, representing as it does the evaluative integration of other, more specific, components.

A considerable body of previous research has examined the antecedents and consequences of self-esteem. Much of this research has been motivated by a conviction that self-esteem plays a critical role in mediating the effects of background on subsequent achievement. A report by Coleman and his associates (1966) was especially influential in popularizing the notion that social class and family background critically affect self-esteem, which in turn affects academic and occupational achievement. Widespread acceptance of this view led many educational researchers to conclude that "... enhancing the self-concept is a vital influence in improving academic performance." (Purkey, 1970, p. 27).

Even a cursory examination of the literature, however, suggests that such conclusions may have been overdrawn. Socioeconomic class seems to have little effect on self-esteem (Bachman, 1970; Edwards, 1974; Wegner, 1973),[1] and most studies that have examined the effects of race have found that blacks have *higher* self-esteem than whites (e.g., Bachman, 1970; Hunt and Hardt, 1969; McDill, Meyers, and Rigsby, 1966; McDonald and Gynther, 1965; Powell and Fuller, 1973; Rosenberg and Simmons, 1972; Simmons et al., 1978; Trowbridge, 1972)—a finding that poses some difficulty for the argument that minority achievement deficits are mediated by self-derogation. Although there is some evidence that self-esteem is positively related to occupational status (Bachman

[1] Rosenberg and Pearlin (1978) provide evidence that social class is moderately related to self-esteem among adults but not among children.

and O'Malley, 1977; Luck and Heiss, 1972), it is not clear whether this relationship is with status per se or whether it results from the tendency of higher-status jobs to provide working conditions more conducive to the development of favorable self-conceptions (Kohn and Schooler, 1973; Miller et al., 1979).

Nor is there much evidence that self-esteem mediates educational achievement. While the two are moderately correlated (Bachman and O'Malley, 1977; Coopersmith, 1959; Rubin, Dorle, and Sandidge, 1977; Trowbridge, 1972), longitudinal studies employing multivariate analysis suggest that this may be primarily due to their common association with background factors (e.g., ability and socioeconomic status) rather than reflecting a direct causal relationship from self-esteem to achievement (Bachman and O'Malley, 1977; Rubin, Maruyama, and Kingsbury, 1979).[2]

It is also plausible, of course, that prior achievements—and the context in which they have occurred—will affect self-esteem. A person who has accomplished something worthwhile is likely to know it and also to have received recognition from others; either element can be expected to enter the person's self-appraisal. Unfortunately, the evidence concerning this causal sequence is no clearer than it is for the reverse.

Each wave of the NLS survey includes a shortened version of one of the more popular measures of generalized self-esteem, the Rosenberg self-esteem scale (Rosenberg, 1965). We have included this measure in our analyses.

Locus of Control

"Locus of control" refers to the extent to which people perceive contingency relationships between their actions and their outcomes. The originator of the concept (Rotter, 1966) distinguished between people who believe that at least some control resides within themselves ("internals") and those who believe that their outcomes are determined by agents or factors extrinsic to themselves ("externals"). De Charms (1968) has made a similar distinction between those who believe themselves to be "origins" and those who believe themselves "pawns."

Although the locus of control construct derives from social learning theory instead of self-concept theory, the belief that one *can* or *cannot* control one's fate is obviously an important belief to hold about oneself, and it is therefore a part of the self-concept—potentially, a very important part.

That locus of control may indeed be important is suggested by its significant relationship to several socially important variables. For example, "internals" are more likely to be campus office-holders and (among males at least) to achieve significantly higher college grades (Brown and Strickland, 1972). The latter relationship seems to hold for blacks as well as whites (Gurin et al., 1969)

[2]Academic achievement, however, is more strongly related to *academic* self-concept than to global self-esteem (Brookover, Thomas, and Paterson, 1964).

and to be paralleled in higher aspirations among blacks who score high in internality. Becker and Hills (1979), examining unemployment among a national probability sample of teenagers, found locus of control as measured in 1966 to be a significant predictor of length of unemployment in 1975, with internals finding a new job more quickly than externals. Similarly, Andrisani and Nestel (1976), studying a national sample of middle-aged males, found that internality was associated with better job outcomes, even when other factors were controlled. This effect was apparent in both cross-sectional and longitudinal analyses.

These and other studies suggest the potential utility of this construct in explaining aspects of behavior that are important both to the individual and to society. To date, however, there has been little careful research aimed at disentangling possible antecedents and specifying long-term consequences. The advent of the NLS, which tracks locus of control among over 22,000 young people for several years, offers a major research opportunity.

Aspirations

A person's notion of who he is includes a set of beliefs about who he can become and what he can aspire to. Aspirations, then, are an important part of the self-concept.

The NLS contains measures of aspirations—or, more properly, expectations—regarding career and further education. Because aspirations are related to eventual attainments—and presumed to mediate them—they have been the subject of considerable research, most of it aimed at disclosing important antecedents. We shall discuss some of this work in the course of presenting our own findings. Meanwhile, we note that career and educational aspirations seem to be related to attainments (Sewell, Hailer, and Portes, 1969; Sewell, Haller, and Ohlendorf, 1970; Wilson and Portes, 1975), although the relationship seems somewhat stronger for education than for career choices (Sewell, Haller, and Ohlendorf, 1970).

Role Orientation

The roles that a person fills tend to become an important part of the person's identity (Gordon, 1976). Role identities are of many kinds: sexual identity, ethnic and religious identity, and identities associated with acquired roles (e.g., occupational, political, and familial). Each role typically has a set of idealized norms which the person tries to live up to and against which the person measures himself. Roles can shape both the content and the evaluative meaning associated with the self-concept. This shaping process is especially important during late adolescence and early adulthood when the individual moves into a variety of new roles. Thus, to gain an understanding of how the self-concept develops during this period requires careful consideration of these roles, both those that have been ascribed and those that the person chooses.

One way to elucidate the meaning of various role choices is to ask about a person's values regarding alternative roles. These values tend to be hierarchically organized; some roles are more important or salient to the individual than others (McCall and Simmons, 1978; Stryker, 1968). The NLS includes a set of questions about the relative importance the individual places on values surrounding career, family, and community.

Sex-Role Attitudes

The 1976 NLS survey contains a set of items measuring attitudes and beliefs concerning sex roles. Although these measures are not directly related to the self-concept, they are of interest in their own right and have therefore been included in our analysis. The items measure two dimensions of sex-role attitudes: traditional versus nontraditional views of family and career priorities for women, and attitudes toward equality of sexual opportunity in the labor market.

LIFE CHOICES AND THE SELF-CONCEPT

The self-concept may be related to life choices in several ways. First, a person's self-concept may influence which choice is made among the available alternatives. Aspirations, for example, seem to play a role in determining how much education a person seeks and what kind of occupation the person chooses. Super (1951) puts the matter well:

> In choosing an occupation one is, in effect, choosing a means of implementing a self-concept. . . . The choice of an occupation is one of the points in life at which a person is called upon to state rather explicitly his concept of himself, to say definitely "I am this or that kind of person." (pp. 81, 92)

One implication of the notion advanced by Super is that young people who have a positive and realistic sense of self are in a better position to make appropriate occupational choices—choices that are congruent with their interests and abilities. Correlational evidence supports this hypothesis (Morrison, 1962; Leonard, Walsh, and Osipow, 1973).

Second, the self-concept is likely to be affected by the choices a person already has made. Attainment of a college degree, the choice of a particular occupation, or the onset of parenthood, for example, alter the way in which the individual views himself.

Finally, it is likely that some aspects of the self-concept are related to life choices only indirectly, through common antecedents. Poverty, deprivation, or other negative experiences, for example, may adversely affect both a person's

self-concept and the types of choices he makes, but in ways that are largely independent.

These distinct types of relationships should be kept in mind when interpreting research results that show a correlation between some measure of the self-concept and the choices that an individual makes. Unfortunately, few studies provide data that would permit one to make reasonable inferences about which type of effect is more likely. For example, Turner (1975) presents data indicating that young people who are enrolled in a university are more likely than those not enrolled to acknowledge a "personal quest for identity" as measured by their responses to the question, "Do you often, sometimes, or never ask yourself, 'Who am I really?'" Intriguing as this finding is, it is open to alternative interpretations. One of the more interesting of these is that the experience of being in college heightens the salience of issues revolving around one's identity. If so, the fact that older adults who have already been through college do not show the same effect suggests that it is related to the *current experience* of being a student and tends to disappear when the person assumes other roles. It is also possible, however, that the "effect" reflects only self-selection within the most recent age cohort. Two such contrasting mechanisms might be: (1) Individuals who are already concerned about their identity are more likely to choose to go to college, in part as a direct consequence of that concern (e.g., college provides an attractive means for exploring issues of identity); (2) individual characteristics and other background factors affect both the likelihood of college attendance and the amount of concern expressed with identity formation. Under the latter explanation, the two phenomena would be seen as related only indirectly. These possibilities illustrate the interpretive problems that arise when one seeks to compare findings across studies.

Most studies relating self-concept and life choices provide correlations indexing the strength of an association at a single point in time. Longitudinal data, which can be extremely helpful in pinpointing the linkages between the development of self-concept and life choices, are quite rare. In one such study, Bachman and O'Malley (1977) studied changes in self-esteem between 1966 and 1974 among a sample of 1,600 young men. Their results, based on path analysis, suggested that relationships among self-esteem, educational achievement, and occupational status may arise primarily from a common association with background factors (ability, scholastic performance, and family background) instead of from any direct causal relation. Bachman and O'Malley found evidence that occupational status affects self-esteem, however. Those with higher-status jobs (but not those with more education) displayed higher self-esteem, even when other factors were controlled.

Another approach to the problem of disentangling causal relationships is illustrated in Kohn and Schooler (1978), who used longitudinal data on a sample of 687 men to investigate the reciprocal relationship between substantive complexity of men's work and their intellectual flexibility. The investigators first performed confirmatory factor analysis to estimate the underlying stability of these variables over a ten-year period (1964-1974), correcting for measurement error. Then they performed a structural equation analysis to test

for reciprocal causal effects. The results demonstrated such effects in both directions. The substantive complexity of men's work had a significant effect on their current intellectual flexibility. Earlier levels of intellectual flexibility also significantly affected the substantive complexity of men's work in 1974, but in this case the effect was lagged rather than contemporaneous. Thus, job characteristics had a fairly immediate effect on psychological functioning, whereas the effects of early intellectual flexibility on the types of jobs these men held did not show up until years later.

In addition to their substantive contributions, these studies provide useful examples of methods by which it is possible to extract information relevant to causal interpretation from correlations. Unfortunately, such techniques have rarely been used in analyzing data on the self-concept.

The present study is distinctive in that it draws on a data base that is considerably larger and richer than many used in the past. It affords an opportunity to examine an unusually wide range of self-concept variables, measured in conjunction with numerous personal characteristics, background factors, and developmental data. Few previous studies, for example, have been able to examine comparable samples of men and women, or to make meaningful comparisons among groups that have made disparate life choices. Thus, the empirical relationships among these choices and most aspects of self-concept development have remained essentially unexplored.

The analysis presented here focuses on how career and educational choices affect self-concept development. We do not examine the other side of what is potentially a reciprocal causal relationship. Although we believe that such an examination would be very much worthwhile, it lies beyond the scope of this study.

III. DATA AND METHODOLOGY

NLS DATA BASE

The NLS was designed by the National Center for Education Statistics to provide a comprehensive data base for studying the educational, vocational, and personal development of high school graduates as they pass through the critical years of early adulthood. The information gathered through the NLS provides a unique opportunity to examine the extent to which personal, familial, institutional, and social factors influence the development of American youth.

The NLS began in the spring of 1972 when 19,001 seniors from 1,061 high schools were asked to complete lengthy questionnaires and take a 69-minute test battery measuring both verbal and nonverbal abilities. The participating schools were also asked to provide further information about the seniors from their student record files. Three follow-up surveys were administered in the fall of 1973, 1974, and 1976 to over 23,000 members of the same graduating class, including most of the seniors who were in the base year sample.

This study is based on a voluminous file of information on 22,652 members of the Class of 1972 for whom data were available from one or more of the surveys.[1] The file contains almost 2,500 variables for each participant, most of which are derived from items on the four survey questionnaires. In addition to providing data about postsecondary educational patterns, labor market participation, and family formation, the file contains numerous items pertaining to the participants' plans, aspirations, and attitudes. Despite the fact that the questionnaires all ran 28 pages or longer, response rates of over 85 percent were achieved on all four surveys, providing a remarkably complete source of detailed information on the lives of the NLS participants.

Valuable as it is as a source of information about the consequences of early education and career choices, the NLS has certain limitations:

- *Exclusion of high school dropouts:* The NLS sample includes only those adolescents who were still in high school in the spring of their senior year, thereby excluding all high school dropouts. Since the latter are likely to have followed sharply different patterns of development, this places an important limitation on the generalizability of NLS-based findings.
- *Missing values:* Despite high response rates on each survey wave, the problem of missing values is pervasive on the NLS, since many respondents did not fully complete their questionnaires.
- *Time period covered:* Only the first four waves of data were available for this analysis, limiting our perspective to the near-term conse-

[1]For documentation of the NLS data, see Levinsohn et al. (1978).

quences of initial career and education choices (i.e., those consequences that have been revealed by about 22 years of age). Longer-term consequences will not manifest themselves until later in life, although some (e.g., those that accompany failure to complete college) may be implied or foreshadowed by the age of 22.

- *Cohort effects:* The NLS data present the interpretational problems that always attend the analysis of a single cohort; i.e., the difficulty in separating the effects of *maturation* and the effects of *cultural change* (Buss, 1973). Survey respondents made the difficult transition from adolescence to adulthood during a particular time period—a period during which economic conditions, secular values, and shared history may have affected both their life choices and outcomes in numerous ways. Assessment of the generalizability of these findings must await the availability of comparable findings from different data sources.

Offsetting these limitations are the following advantages:

- *Large sample size:* Using procedures described later in this section, we were able to classify more than 90 percent of the NLS sample by postsecondary track in October 1972. Since the numbers of respondents within each of the tracks range from 506 (military) to 6,478 (full-time labor force), these sample sizes are large enough to support rather detailed analyses.
- *Timeliness:* The career and educational choices documented in the NLS were made in the early 1970s, with consequences that are still unfolding. Moreover, the context in which these choices were made (post-Vietnam war, a labor market straining to absorb large numbers of new entrants) is similar in many respects to that which prevails today.
- *Availability of comparison groups:* It is possible to compare, for example, students in four-year colleges with those in two-year colleges or vocational-technical schools, homemakers with working women, full-time with part-time workers and the unemployed, etc.
- *Richness of background data:* The NLS contains numerous background measures that are pertinent to a study of career and educational choices, including measures of scholastic performance, socioeconomic status (SES), race, and ability.

The Four Waves of the NLS

The approximate timing of the four waves of the NLS is indicated in Fig. 1. The questionnaires for the follow-up surveys were mailed in October 1973, 1974, and 1976. Although efforts were made to increase response rates through April or May of the following year, the respondents were instructed to report their current statuses as of the first week of October. Hence, the follow-up

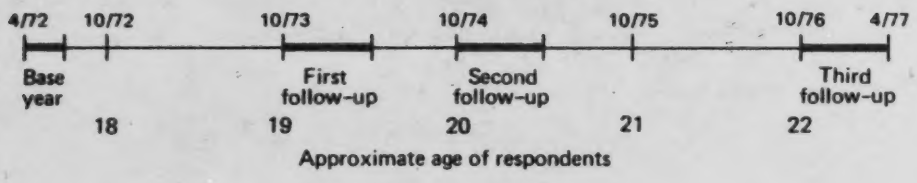

Fig. 1.—Timing of NLS surveys

surveys can be treated as though all respondents were surveyed in early October.

Figure 1 also shows the approximate age of the respondents as of each survey. There is little variation in age among the NLS respondents: 73 percent were born in 1954, 20 percent in 1953, four percent before 1953, and three percent after 1954. Most respondents, then, were either 17 or 18 at the time of the base year survey and were turning 22 about the time of the third follow-up.

The composition of the NLS sample changed between successive waves of the survey. The initial sample design called for first selecting a national probability sample of 1,200 schools and then choosing 18 seniors at random from each school. The schools were selected by stratified sampling using strata determined by (1) type of control (public or private), (2) geographic region, (3) size of senior class, (4) proximity to institutions of higher education, (5) percentage minority group enrollment, (6) income level of the community, and (7) degree of urbanization. Schools located in low-income areas and schools with high proportions of minority students were oversampled at approximately twice the sampling rate used for the remaining schools.

Of the 1,200 schools that were selected initially, 21 had no seniors and 231 others either refused to participate or could not participate because the request was received too late in the year. The remaining 948 schools in the initial sample were later augmented by 113 backup schools that were similar in composition to the nonparticipating schools. Of the 19,001 seniors selected from those 1,061 schools, 16,683 completed the Base Year Questionnaire in the spring of 1972. At about the same time, the participating schools were asked to administer a battery of tests to the seniors in the sample and fill out forms providing information from student records.

The base year sample was further augmented in the three follow-up surveys to include 1,300 schools on the first follow-up survey and 1,318 on the second and third follow-ups, bringing the total number of seniors in the NLS sample to 23,451. This study is based on a data file containing information on 22,652 "participants" in the NLS, i.e., those seniors in the NLS sample who either were respondents to one of the four questionnaires or were individuals for whom test battery scores or information forms were provided by their schools.

Response Rates

Although only 14,112 (62 percent) of the participants responded to all four

waves, the response rates for the individual surveys were surprisingly high considering the lengths of the questionnaires. The sample sizes and numbers of respondents to each of the four waves were as follows:

Survey	Number in Sample	Number of Respondents	Response Rate
Base year	19,001	16,683	87.8%
First follow-up	23,122	21,350	92.3%
Second follow-up	23,451	20,872	89.0%
Third follow-up	23,451	20,092	85.7%

These response rates are based on the total number of individuals in the NLS sample, not the number of potential respondents who received questionnaires. Many members of the initial sample were dropped from the follow-up mailing lists because of prior refusals, reported deaths, and other reasons. As a result of this natural attrition in active NLS participants over time, the Third Follow-up Questionnaire was mailed to only 21,807. Thus, the 20,092 respondents to the third follow-up survey accounted for 92 percent of the mailouts. The corresponding rates for the first and second follow-ups were 94 and 93 percent.

These remarkably high response rates, achieved in part through the use of telephone follow-up procedures to elicit partial responses to key questions, overstate the completeness of responses to individual items of relevance to this study. For example, among the 21,350 respondents to the First Follow-up Survey, 1,373 (6 percent) did not respond to the question, "What kind of work will you be doing when you are 30 years old?"

DEFINING POSTSECONDARY TRACKS

Our primary objective is to use the NLS data to explore how postsecondary occupational choices and educational patterns affect aspirations, expectations, and other aspects of the self-concept. Our methodology consists of first classifying the NLS respondents into nine postsecondary "tracks" corresponding to their main activities shortly after leaving high school. The outcome measures are then compared over time and across groups, adjusting for differences among the groups in background characteristics that are correlated with outcome measures.

To classify the NLS respondents into postsecondary tracks, we began by categorizing the individuals according to their student and occupational statuses for each of the years from 1972 to 1976. On the basis of these initial classifications, we then classified the respondents into one of the following eight disjoint categories for each of the five years:

1. Military service
2. Student in a four-year institution
3. Student in a two-year college
4. Student in a vocational-technical school

5. Full-time worker
6. Homemaker
7. Part-time worker
8. Unemployed

Table 1 provides a more complete description of these tracks; details are given in App. B.

Table 1

DEFINITION OF POSTSECONDARY TRACKS

Priority	Track	Definition
1	Military	On active duty in the military service.
2	Student (4 year)	Full-time student in a university or other four-year institution, not in military service.
3	Student (2 year)	Full-time student in a two-year college, not in military service.
4	Student (Voc-tech)	Full-time student in a vocational, trade, business, or other career training school, not in military service.
5	Worker (Full-time)	Full-time worker in the civilian labor force, not a full-time student.
6	Homemaker	Full-time female homemaker, not a full-time student.
7	Worker (Part-time)	Part-time worker in the civilian labor force, not a student.
8	Unemployed	Not working and not a student.
9	Unclassified	All others.

NOTE: Tracks are defined to be mutually exclusive. Priority rankings indicate which tracks take precedence in resolving cases of multiple activities. For example, full-time students who are also working part-time are assigned to track 2, 3, or 4, and excluded from track 7.

Our individual effects analysis focuses on longitudinal differences in outcomes that are associated with respondents' *initial* postsecondary choices; accordingly, we have used classifications as of October 1972 to define postsecondary tracks. Long-term changes are examined for each of the groups defined by these initial choices, regardless of subsequent changes in their activities. In essence, the analysis is based on a "snapshot" of respondents' early postsecondary activities. A parallel analysis based on the total amount of time spent in a track over the four-year period would be conceptually desirable; however, such an analysis would encounter major problems stemming from the compounding of missing data across survey waves.

Defining comparison groups according to the track initially entered enabled us to arrive at an unambiguous classification of more than 90 percent of all NLS respondents, as shown in the entries in Table 2. Thus, our classification scheme provides a reasonably exhaustive typology of the major postsecondary education and employment activities.

The rarity of unclassifiable cases suggests that the conclusions drawn from our analysis apply to most high school graduates, and would probably be little

Table 2

Distribution of NLS Respondents by Postsecondary Track in October 1972

Postsecondary Track, October 1972	Number of Respondents			Percent of Classifiable Respondents		
	Female	Male	Total	Female	Male	Total
Full-time Student						
4-year college	2,973	3,084	6,057	28.9	30.6	29.8
2-year college	1,300	1,417	2,717	12.6	14.1	13.4
Voc-tech	873	511	1,384	8.5	5.1	6.8
Labor Force						
Full-time	2,957	3,521	6,478	28.7	35.0	31.8
Part-time	618	445	1,063	6.0	4.4	5.2
Military	23	483	506	0.2	4.8	2.5
Homemaker	589	---	589	5.7	---	2.9
Unemployed	954	603	1,557	9.3	6.0	7.7
Unclassified	1,049	1,103	2,152	---	---	---
Total	11,336	11,167	22,503	100.0	100.0	100.0

NOTE: Percentages may not sum to 100 due to rounding.

altered by higher response or classification rates. The NLS is not a representative sample from the class of 1972, however. Schools located in low-income areas and schools with high proportions of minority students were sampled at approximately twice the rate used for other schools. Accordingly, the percentage distribution of NLS participants in various postsecondary tracks does not necessarily correspond to the national percentages. However, estimates of the national percentages can be obtained by weighting the individuals in the NLS proportional to the reciprocals of their sample inclusion probabilities.[2] Table 3 provides the corresponding national estimates of postsecondary track frequencies for the estimated 3,043,600 seniors in the class of 1972. Of the smaller group of 2,773,900 seniors who were classifiable by our scheme, roughly a third entered the full-time labor force and another third enrolled in four-year colleges or universities. The remainder entered other types of educational institutions, worked part-time, served in the military, engaged in full-time homemaking, or were unemployed. Comparisons of the percentage distribution in the NLS sample (Table 2) with that estimated for the population (Table 3) reveals a remarkable degree of correspondence, despite known departures from random sampling. With respect to postsecondary activities (though not necessarily other characteristics), the composition of the NLS sample accurately reflects the composition of the population from which it is drawn.

[2]See Levinsohn et al. (1978) for a detailed description of the sampling procedure and derivations of sampling probabilities. Various sets of weights are provided on the NLS file to allow for nonresponse rates in the four waves. The weights W12 were chosen for this study.

Table 3

Estimated Distribution of the Class of 1972 by Postsecondary Track in October 1972

Postsecondary Track, October 1972	Estimated Number of Seniors			Estimated Percent of Classifiable Seniors		
	Females	Males	Total	Females	Males	Total
Full-time Student						
4-year college	403,800	429,400	833,200	29.1	31.0	30.0
2-year college	174,400	194,900	369,300	12.6	14.0	13.3
Voc-tech	118,400	68,300	186,700	8.5	4.9	6.7
Labor Force						
Full-time	407,600	485,800	893,400	29.4	35.0	32.2
Part-time	87,000	63,100	150,100	6.3	4.5	5.4
Military	2,700	66,000	68,700	0.2	4.8	2.5
Homemaker	75,100	---	75,100	5.4	---	2.7
Unemployed	117,600	79,800	197,400	8.5	5.8	7.1
Unclassified	132,200	137,500	269,700	---	---	---
Total	1,518,800	1,524,800	3,043,600	100.0	100.0	100.0

NOTE: Entries are population estimates obtained by weighting the individuals in the NLS by the reciprocal of their sample inclusion probabilities. Percentages may not sum to 100 due to rounding.

As we have indicated, our definition of postsecondary track is based on a "snapshot" of postsecondary activities in October 1972, rather than on a multi-year assessment of all activities engaged in during the four-year period. For that reason, it is important to assess the extent to which young people's initial choice of a track is an enduring one. If young people tend to persist in their initially chosen activities, this suggests that the methodological decision to define track solely by these initial choices is likely to yield the same conclusions that would be reached by a more complex definition based on multiyear responses. Conversely, if initial choices tend to be ephemeral, this would caution against interpreting the results as if they reflected stable choices.

One difficulty in assessing the persistence of initial choices is that the time normally spent in the various tracks varies considerably. Four years are normally required to earn the baccalaureate, but considerably less time is required to obtain vocational-technical training. Moreover, the time spent in some tracks (unemployment or part-time employment) may sometimes be a matter of circumstance, uncertain and transitory. There is good reason to expect that young people will not persist equally in all tracks, and no reason to expect that the effects of being in a track depend in any uniform way on the amount of time that a young person spends in that track. Four years of unemployment do not equate to four years in college.

With these cautions in mind, it is nonetheless instructive to examine the relationship between initial activities and later ones. Table 4 shows this relationship for the first year covered by the NLS (October 1972-October 1973). The data in the table indicate that roughly two-thirds of those who were classifiable in both years were engaged in the same activity in October 1973 as they had been in October 1972. Thus, persistence was the rule rather than the exception. As one might expect, however, persistence varied considerably by track. The most stable tracks were full-time labor participation, military service, and attendance at a four-year college. The least stable were unemployment, part-time employment, and full-time attendance at a vocational-technical school. The latter tracks represent states that are usually temporary or transitional; each is as often—or almost as often—followed by full-time employment as by continuation in the same track.

Table 4

Persistence in Postsecondary Tracks, October 1972-October 1973

Postsecondary Track October 1972	NLS Respondents		High School Class of 1972	
	Number in Track October 1972[a]	Percent Persisting in Track October 1973	Estimated Number in Track October 1972	Estimated Percentage Persisting in Track October 1973
FEMALES				
Full-time student				
4-year college	2,875	81.4	403,800	80.8
2-year college	1,256	60.8	134,400	61.0
Voc-tech	846	26.1	118,400	27.1
Labor force				
Full-time	2,898	72.8	407,600	73.4
Part-time	594	26.1	87,000	25.0
Military	23	82.6	2,700	76.5
Homemaker	583	62.1	75,100	63.0
Unemployed	933	28.3	117,600	25.5
Total	10,008	62.3	1,386,600[b]	62.4
MALES				
Full-time student				
4-year college	3,002	79.6	429,400	79.6
2-year college	1,348	59.7	194,900	59.1
Voc-tech	494	43.3	68,300	45.2
Labor force				
Full-time	3,458	80.1	485,800	80.3
Part-time	432	17.1	63,100	18.4
Military	479	91.4	66,000	90.5
Unemployed	587	22.5	79,800	22.1
Total	9,800	69.6	1,387,300[b]	69.8

[a] Excludes respondents not classifiable in 1972 or 1973.

[b] Excludes respondents not classifiable in 1972.

Overall, the data suggest that the types of activities that young people engage in shortly after high school tend to be enduring. For that reason, we would expect an analysis based on these initial choices to capture pretty much the same effects that would appear in a more complex (and less tractable) analysis accounting for subsequent activities.

Our analytic strategy permits us to examine changes in outcomes for the same people over time as well as relative to changes among individuals in other tracks. It is therefore a longitudinal (cohort) analysis as well as a cross-sectional one. This strategy offers a major interpretational advantage over a solely cross-sectional analysis, in that it permits estimation of average individual effects of postsecondary experiences by comparing later outcome measures with those taken in high school as well as with those in other tracks.[3] It is important to remember, however, that those who switch tracks rather early (e.g., drop out of college in their freshman year) are included along with those who persist much longer. Thus, the analysis examines the effects of initial *entry* into a track, regardless of how long the person remains in it.

BACKGROUND FACTORS

As we shall see, the members of the Class of 1972 who entered various postsecondary tracks differed markedly even in high school. For example, those who enrolled in college exhibited higher academic ability and came from homes with higher socioeconomic status (SES) than did those who engaged in other postsecondary activities. Before drawing inferences about the effects of entering various postsecondary tracks, one must allow for preexisting differences in background factors, because these differences might themselves account for differences in outcomes.

Table 5 lists the background factors that were incorporated into our analysis. The list includes characteristics in the following areas:

- Race/ethnicity classification
- Region
- Religion
- Ability and scholastic performance
- High school curriculum
- Socioeconomic status
- Other background factors

The definitions of the variables listed in Table 5 are given in App. C, while App. F provides means, standard deviations, and sample sizes.

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[3]In a cross-sectional analysis, the composition of track membership varies over time, complicating comparison. For example, the people who are full-time homemakers in October 1973 are not always the same people who were homemakers in October 1972. Group-level differences in outcome may reflect individual changes, changes in group composition, or both.

Table 5

Background Factors

Race/Ethnicity Classification	Variable Name
American Indian [1]	INDIAN
Black, Afro-American, or Negro [1]	BLACK
Mexican-American, Chicano, Puerto Rican, or other Latin American origin [1]	HISPANIC
Oriental or Asian-American [1]	ORIENTAL
Other minority [1]	OTHER
White or Caucasian [2]	
Region	
Northeast [1]	NEAST
South [1]	SOUTH
West [1]	WEST
North Central [2]	
Religion	
Roman Catholic [1]	CATHOLIC
Jewish [1]	JEWISH
All others [2]	
Ability and Scholastic Performance	
Ability composite score	ABLE
Percentile rank in class	RANK
High School Program	
Academic or college preparatory [1]	ACADEMIC
Vocational-technical [1]	VOCTECH
General [2]	
Social Background	
Father's educational attainment	EDPA
Mother's educational attainment	EDMA
Father's occupation (Duncan SEI score)	SEIFAOCP
Mother's professional status [1]	MAPROF
Mother's homemaker status [1]	MAHOME
Number of siblings	SIBS
Number of siblings in college	SIBSCOLL
Friends plan college [1]	PALSCOLL

NOTES:

[1] -- Indicator variable having the value one (zero) if the condition applies (or does not apply).
[2] -- Omitted category for which no indicator variable was defined.

This list of variables was culled from a much longer list that was compiled from our reading of the literature and refined through variable selection procedures employing linear regression techniques.

The definition of most of these variables is straightforward. Some require brief explanation, however. The ability composite score ABLE is the sum of the scaled scores for four tests on vocabulary, reading, letter groups, and mathematics that were administered to the NLS seniors in the spring of 1972. Each test score was scaled to have a mean of 50 and a standard deviation of ten. The four tests for the composite index ABLE were chosen on the basis of a factor analysis reported in Levinsohn et al. (1978).

Percentile rank in class indicates how the NLS participants compared with their high school classmates. For example, a percentile rank of 25 means that

the senior's overall grade point average ranked above 25 percent of his classmates and below the remaining 75 percent.

The father's occupational index SEIFAOCP is the Duncan SEI score corresponding to the census code for the father's occupation. Because analogous codes were not available for mother's occupation, two indicator variables were created to categorize the mother's occupation, one indicating whether she was a homemaker and a second indicating whether she was a professional worker (doctor, lawyer, teacher, social worker, scientist, etc.).

OUTCOME MEASURES

The results reported in Sec. IV relate to the variables listed below. Unless otherwise specified, the outcomes are measured on all four surveys.

Self-esteem: average coded response on a five-point scale to the following statements:

1. I take a positive attitude toward myself.
2. I feel I am a person of worth, on an equal plane with others.
3. I am able to do things as well as most other people.
4. On the whole, I'm satisfied with myself.

Scoring: 1—"Disagree strongly," ..., 5—"Agree strongly."

Locus of control: average coded response on a five-point scale to the following statements:

1. Good luck is more important than hard work.
2. Every time I try to get ahead, something or somebody stops me.
3. Planning only makes a person unhappy since plans hardly ever work out anyway.
4. People who accept their condition in life are happier than those who try to change things.

Scoring: 1—"Agree strongly," ..., 5—"Disagree strongly."

Work orientation: average coded response (1—"Not important," 2—"Somewhat important," 3—"Very important") to questions asking the respondent to rate the importance of:

1. Being successful in my line of work.
2. Having lots of money.
3. Being able to find steady work.

Community orientation: average coded response (1—"Not important," 2—"Somewhat important," 3—"Very important") to questions asking the respondent to rate the importance of:

1. Being a leader in my community.
2. Being able to give my children better opportunities than I've had.
3. Working to correct social and economic inequalities.

Family orientation: average coded response (1—"Not important," 2—"Somewhat important," 3—"Very important") to questions asking the respondent to rate the importance of:

1. Finding the right person to marry and having a happy family life.
2. Living close to parents and relations.
3. Getting away from this area of the country.

Scoring for the last-named item was reversed in accordance with its negative relationship to family orientation. Information on the factor structure of the work, community, and family scales is provided by National Center for Education Statistics (1977).[4]

Sex-role attitudes (1976 only): measures derived from coded responses to the following items:

A. A working mother of pre-school children can be just as good a mother as the woman who doesn't work.
B. It is usually better for everyone involved if the man is the achiever outside the home and the woman takes care of the family.
C. Young men should be encouraged to take jobs that are usually filled by women (nursing, secretarial work, etc.).
D. Most women are just not interested in having big and important jobs.
E. Many qualified women can't get good jobs; men with the same skills have much less trouble.
F. Most women are happiest when they are making a home and caring for children.
G. High school counselors should urge young women to train for jobs which are now mainly held by men.
H. It is more important for a wife to help her husband than to have a career herself.
I. Schools teach women to want the less important jobs.
J. Men should be given the first chance at most jobs because they have the primary responsibility for providing for a family.

Scoring: 1—"Disagree strongly," ..., 4—"Agree strongly."

On the basis of a factor analysis described in App. E, two summary scales were derived. The first, labeled "traditional family priority," measures the relative importance of family and work for women, and consists of the average score for items B, D, F, H, and J. High scores indicate agreement with the traditional priority of family over work for women (and the reverse for men). The second, labeled "equal employment," measures attitudes toward equal opportunity in employment, and consists of the average score for items C, E, G, and I. High scores on this factor indicate agreement with a nontraditional, equalitarian view of employment opportunities for men and women.[5]

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[4]The questionnaires included an additional item asking respondents to rate the importance of "Having strong friendships." This item did not correlate well with any of the factors and was not used in our analyses.

[5]Item A does not correlate well with either factor, and is therefore eliminated from scoring.

The first factors described above roughly correspond to two clusters of items identified by Mason and Bumpass (1975)—one of which described traditional views regarding sex-based division of labor, the other equal rights in the labor market.

Expected educational attainment: number of years of education expected, estimated from responses to the question, "As things stand now, how far in school do you think you actually will get?"[6] The possible responses are listed below, with coding indicated in parentheses:

High school only (12)
Vocational, trade, or business school
  Less than two years (13)
  Two years or more (14)
College program
  Some college (including-two year degree) (14)
  Finish college (four- or five-year degree) (16)
  Master's degree or equivalent (18)
  Ph.D., M.D., or equivalent (20)

Career aspiration index: a summary measure of level of career aspiration, based on responses to the question, "What kind of work will you be doing when you are 30 years old?"[7] The index was derived from a canonical correlation between indicator variables for 1973 occupational aspirations and a set of background factors (ability, scholastic performance, and socioeconomic measures) that are known to be related to career choices. The derivation of CARASP is explained in App. D.

Table 6 lists the occupational categories that were presented as response alternatives in the questionnaire. The second column of Table 6 shows the values of CARASP for each category, whereas the third column gives average Duncan SEI scores for selected subsets of occupations from those categories as reported by Levinsohn et al. (1978). Although the two measures are highly correlated (0.92 for males, 0.81 for females), CARASP has some advantages over the average Duncan SEI scores. First, CARASP is more complete; it assigns empirically derived scores for homemaker and military occupations, neither of which is covered by the Duncan SEI index. Second, it circumvents

[6]The form of the question differed at baseline (1972). Respondents were asked to circle the highest level they *planned* to attain. Educational expectations in 1972 are measured by responses to this question, coded in the same way as responses to the follow-up question.

[7]Unfortunately, the question concerning career aspirations on the Base Year Questionnaire was worded somewhat differently from the questions on the follow-up surveys. The base year question was listed under the caption "Plans for the future . . ." and asked the respondent to select the occupational category "that goes with the best description of the kind of work you would like to do." Unlike the follow-up questions, which asked the respondent to report what he or she expected to be doing at a particular age (30), the base year question is indefinite. Also, base year respondents, unlike those at follow-up, were not given the option of stating that they did not plan to work. Finally, the base year question combined the three professional categories denoted by "Professional I," "Professional II," and "School Teacher" in Table 6 into a single "Professional" category. The CARASP value for this combined group was taken to be 70, which is approximately the average Duncan SEI score for occupations in that category.

the problems associated with weighting the individual Duncan SEI scores to provide a suitable "average" score for a given occupational category.[8]

Because professional aspirations were measured differently at base year than at follow-up, we created a separate index of professional aspirations that would be comparably defined for all four waves. Specifically:

Table 6

VALUES OF THE CAREER ASPIRATION INDEX AND AVERAGE DUNCAN SEI SCORES BY OCCUPATIONAL CATEGORY

Occupational Category	Career Aspiration Index	Average Duncan SEI Score	1973 Counts	
			Female	Male
Professional, I[a]	80	80	687	1357
Professional, II[b]	64	71	2223	1813
School Teacher	63	67	968	379
Manager	49	68	277	887
Military	48	--	28	187
Proprietor	42	50	80	486
Technical	40	60	373	688
Sales	38	54	135	186
Homemaker	36	--	2451	7
Clerical	35	57	1927	162
Farmer	33	28	76	325
Protective	31	38	37	335
Service	25	16	347	40
Craftsman	24	27	64	1564
Operative	15	19	98	520
Laborer	10	7	20	425

SOURCE: Derivation of the career aspiration index is described in Appendix C. Average Duncan SEI scores are from Levinsohn et al. (1978), except for the first three categories, calculated here by a comparable method.

[a]Category examples include clergyman, dentist, physician, lawyer, scientist, college teacher.

[b]Category examples include accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not public school teacher.

Professional aspiration: an indicator variable scored 1 if the respondent reported aspiring to any professional career (Professional I, II, or school teacher), 0 if the respondent reported any other career goal.

[8]The Duncan SEI scores for individual occupations are themselves suspect. For example, dentists have higher Duncan SEI scores than physicians, stenographers are rated higher than registered nurses. Generally, clerical, sales, and technical occupations receive higher relative scores on the Duncan SEI than on the CARASP index.

Homemaker aspiration: a similar indicator variable, scored 1 if a female respondent reported homemaker as a career goal, 0 if she reported any other goal.

Satisfaction with career progress (1976 only): coded response to the question, "How satisfied are you with the progress you have made toward doing the kind of work you expect to be doing when you are 30 years old?" Coding: 1—"Very dissatisfied," ..., 4—"Very satisfied."

The means, standard deviations, and sample sizes for these outcome measures are given in Table 7. The variation in sample sizes across measures results primarily from the fact that the Base Year Questionnaire was not administered to 19 percent of the members of the NLS sample. Some variability in sample size also may have resulted from confusing routing instructions in the questionnaire.[9]

METHODOLOGY FOR ASSESSING EFFECTS

Our general objective is to explore how postsecondary choices about education and occupation affect the young adult's self-concept. In doing this, one of our main concerns is to distinguish the consequences of career and educational choices from the differences that led to the choice in the first place. As Tables 8 through 11 show, those differences are not trivial. The choice to pursue further education, for example, is more often made by young people whose ability, socioeconomic background, and high school record have made that choice seem attractive or feasible or both. Because these variables may also affect the outcomes we wish to observe, their effects must be separated from those of the choices with which they are associated.

Fortunately, the large sample size in the NLS data set enables us to categorize respondents into relatively homogeneous groups by sex and postsecondary track and still have a large number of cases within each group. The effects of postsecondary experiences can then be inferred by comparing the group means over time and across groups, adjusting for differences among the groups in background characteristics that are correlated with the outcome measures.

The Individual Effects Model

Our statistical procedures for comparing the outcome measures across postsecondary tracks are based upon two premises: (1) The "effects" of career and educational choices vary from person to person and depend on a variety of factors, many of them unknown; and (2) these effects can be estimated for a particular individual by comparing changes between the individual's outcome

[9]The relatively low response rates for questions about educational expectations and career, homemaker, and professional aspirations on the 1972 survey apparently resulted from confusing instructions for answering these questions.

Table 7

Sample Means and Standard Deviations of the Outcome Measures

		FEMALES			MALES		
Outcome Measure	Year	Mean	S.D.	N	Mean	S.D.	N
Self-Esteem	1972	3.89	0.67	8365	3.96	0.63	8217
	1973	4.10	0.56	10356	4.14	0.54	9744
	1974	4.15	0.60	10019	4.24	0.57	9399
	1976	4.21	0.60	9921	4.32	0.56	9403
Locus of Control	1972	3.79	0.73	8360	3.65	0.74	8204
	1973	3.86	0.68	10352	3.78	0.67	9728
	1974	3.86	0.70	10006	3.78	0.72	9385
	1976	3.91	0.70	9917	3.86	0.72	9398
Work Orientation Composite	1972	2.46	0.36	8366	2.59	0.36	8228
	1973	2.36	0.39	10374	2.51	0.36	9763
	1974	2.36	0.40	9983	2.50	0.37	9369
	1976	2.35	0.41	9937	2.52	0.35	9416
Family Orientation Composite	1972	0.95	0.40	8257	0.91	0.41	8083
	1973	1.05	0.36	10209	1.00	0.37	9599
	1974	1.07	0.37	9894	1.01	0.37	9278
	1976	1.09	0.36	9826	1.02	0.36	9299
Community Orientation Composite	1972	2.14	0.43	8353	2.13	0.47	8210
	1973	2.04	0.43	10358	2.07	0.47	9739
	1974	2.00	0.43	9979	2.03	0.47	9359
	1976	1.96	0.43	9935	2.01	0.47	9409
Traditional Family Priority Composite	1976	2.16	0.55	9070	2.38	0.50	8314
Equal Employment Composite	1976	2.51	0.47	9070	2.40	0.43	8314
Expected Educational Attainment	1972	14.41	1.99	6319	14.89	2.07	5962
	1973	14.28	2.16	10133	14.87	2.36	9619
	1974	14.42	2.25	9698	14.94	2.37	9099
	1976	14.78	2.40	9461	15.17	2.46	9137
Career Aspiration Index	1972	51.17	18.25	6587	47.21	20.99	5981
	1973	47.77	16.27	9791	46.31	21.42	9361
	1974	47.38	16.29	9602	45.98	21.24	9092
	1976	46.84	15.90	9657	44.28	20.46	9269
Professional Aspirations	1972	0.47	0.50	6587	0.41	0.50	5981
	1973	0.40	0.49	9791	0.38	0.49	9361
	1974	0.39	0.49	9202	0.37	0.48	9092
	1976	0.36	0.48	9657	0.32	0.46	9269
Homemaker Aspirations	1972	0.06	0.23	6587			
	1973	0.25	0.43	10005			
	1974	0.25	0.43	9837			
	1976	0.24	0.43	9841			
Satisfaction with Career Progress	1976	3.05	0.81	9850	3.03	0.80	9366

SOURCE: Tabulated from the NLS data base.

Table 8

Academic Ability of NLS Respondents by Postsecondary Track as of October 1972

Postsecondary track as of October 1972	Percent by ability level			N
	Low	Medium	High	
FEMALES				
Students				
4-Year	8.8	37.7	53.5	2138
2-Year	21.9	52.9	25.2	893
Voc-Tech	31.6	52.9	15.5	645
Workers				
Full-time	37.3	49.8	12.9	2035
Part-time	37.4	47.1	15.5	431
Military	35.7	50.0	14.3	14
Homemakers	49.5	40.7	9.8	396
Unemployed	50.8	39.6	9.6	626
Unclassified	43.2	41.1	15.7	778
All Subjects	29.7	44.9	25.4	7956
MALES				
Students				
4-Year	8.4	38.1	53.6	2160
2-Year	21.7	53.0	25.3	994
Voc-Tech	32.7	51.2	16.1	361
Workers				
Full-time	45.4	43.6	11.0	2454
Part-time	45.7	43.1	11.3	311
Military	39.9	45.7	14.4	348
Unemployed	45.1	41.9	13.1	406
Unclassified	39.4	42.2	18.4	864
All Subjects	30.8	43.5	25.7	7898

Table 9

Percentile Rank in Class of NLS Respondents by Postsecondary Track as of October 1972

Postsecondary track as of October 1972	Percent by rank in class				N
	0-25	26-50	51-75	76-100	
FEMALES					
Students					
4-Year	2.8	10.2	25.0	62.1	2254
2-Year	11.9	19.3	32.7	36.2	992
Voc-Tech	15.4	25.8	32.8	26.0	677
Workers					
Full-time	17.6	27.2	31.6	23.7	2155
Part-time	22.5	29.6	26.2	21.7	466
Military	7.1	42.9	21.4	28.6	14
Homemakers	25.8	29.4	25.1	19.8	415
Unemployed	27.6	29.2	27.4	15.7	667
Unclassified	22.1	25.8	29.2	22.9	814
All Subjects	14.7	21.9	28.9	34.6	8454
MALES					
Students					
4-Year	6.1	17.9	32.0	44.0	2328
2-Year	21.5	33.1	26.8	18.6	1087
Voc-Tech	24.3	35.7	26.2	13.8	378
Workers					
Full-time	39.3	33.6	20.1	7.0	2592
Part-time	42.1	31.0	19.8	7.1	323
Military	32.3	34.5	24.5	8.6	359
Unemployed	42.5	28.3	18.4	10.8	424
Unclassified	32.9	29.2	23.9	14.1	867
All Subjects	26.4	28.5	25.0	20.1	8358

Table 10

Socioeconomic Status of NLS Respondents by Postsecondary Track as of October 1972

Postsecondary track as of October 1972	Percent by SES			N
	Low	Medium	High	
FEMALES				
Students				
4-Year	15.0	41.7	43.2	2964
2-Year	23.6	50.5	25.8	1296
Voc-Tech	33.7	53.7	12.6	870
Workers				
Full-time	38.3	51.8	9.9	2938
Part-time	36.2	52.0	11.9	614
Military	34.8	60.9	4.3	23
Homemakers	49.7	44.8	5.5	585
Unemployed	45.9	45.4	8.7	940
Unclassified	34.8	48.8	16.4	975
All Subjects	30.9	48.0	21.1	11205
MALES				
Students				
4-Year	13.1	40.6	46.2	3073
2-Year	18.4	52.2	29.4	1410
Voc-Tech	31.5	53.5	15.0	508
Workers				
Full-time	36.5	52.1	11.5	3483
Part-time	35.8	50.2	14.0	444
Military	40.0	46.7	13.3	480
Unemployed	42.2	46.7	11.1	585
Unclassified	29.9	48.2	21.9	997
All Subjects	27.2	48.0	24.8	10980

Table 11

Racial Distribution of NLS Respondents by Postsecondary Track as of October 1972

Postsecondary track as of October 1972	Percent of respondents classified as							
	American Indian	Black	Hispanic	Oriental	White	Other	Unknown	N
FEMALES								
Students								
4-Year	0.5	14.1	2.5	1.7	79.2	1.5	0.4	2973
2-Year	0.9	12.5	5.2	1.9	77.0	2.0	0.5	1300
Voc-tech	0.7	16.7	3.6	0.5	76.7	1.5	0.3	873
Workers								
Full-time	1.3	11.9	4.2	0.4	78.2	3.4	0.5	2957
Part-time	1.3	13.8	4.5	0.6	76.1	3.4	0.3	618
Military	0.0	30.4	4.3	0.0	65.2	0.0	0.0	23
Homemakers	1.5	16.6	5.1	0.5	72.7	3.6	0.0	589
Unemployed	1.5	27.5	6.6	0.2	60.0	3.2	1.0	954
Unclassified	1.5	20.7	6.9	1.5	65.0	3.0	1.4	1049
All Subjects	1.0	15.4	4.3	1.0	75.0	2.6	0.5	11336
MALES								
Students								
4-Year	0.3	8.9	2.4	1.9	84.6	1.6	0.3	3084
2-Year	1.1	8.5	6.4	2.9	78.6	2.0	0.4	1417
Voc-tech	0.8	14.3	3.1	1.2	78.1	2.3	0.2	511
Workers								
Full-time	1.7	12.4	4.4	0.4	76.7	3.6	0.8	3521
Part-time	1.1	17.1	6.3	1.3	70.1	3.1	0.7	445
Military	1.0	18.6	5.8	0.8	71.0	1.9	0.8	483
Unemployed	1.8	22.7	6.8	0.2	64.2	2.7	1.7	603
Unclassified	1.8	14.6	5.6	1.0	71.3	3.6	2.1	1103
All Subjects	1.2	12.3	4.4	1.3	77.5	2.7	0.7	11167

measures with estimates of the expected changes for individuals in a suitably chosen "control group" with similar background characteristics.

To make these notions more precise, consider an individual with a vector of characteristics X who enters a particular postsecondary track—say, attendance at a four-year college. Let Y_1 and Y_2 describe this individual's outcomes before and after entering college. It is clear that the "gain score" $G = Y_2 - Y_1$ is, in general, not a good estimator of the effect of going to college. It does not allow for natural growth in the attribute being measured (i.e., growth that would have occurred in the absence of college attendance), nor does it allow for secular changes and other intertemporal factors that may affect the outcome measures. To control for these other factors, let $h_1(X)$ and $h_2(X)$ be the values that one would predict for Y_1 and Y_2 based upon observations of individuals with similar characteristics in a control group. Then an estimator of the effect of college attendance that adjusts the gain score to allow for the effects of intertemporal factors is

$$D = (Y_2 - Y_1) - [h_2(X) - h_1(X)].$$

Rewriting this in the form

$$D = [Y_2 - h_2(X)] - [Y_1 - h_1(X)],$$

we see that D is the difference in the deviations of the measures Y_i from their predicted values $h_i(X)$. That is, D is another gain score based upon different metrics at the two time points. These metrics are prescribed in terms of the functions $h_1(X)$ and $h_2(X)$ that reflect average behavior in the control group.

Ignoring for the moment the problem of determining the predictors $h_i(X)$, suppose $D_1, D_2, ..., D_n$ are the estimated individual effects for n individuals who have entered college and who have vectors of characteristics $X_1, X_2, ..., X_n$. Then the corresponding estimate of the *average* effect of college attendance for this group of n individuals is $\bar{D} = \Sigma D_i/n$. If the predictors are linear in X, then

$$\bar{D} = [\bar{Y}_2 - h_2(\bar{X})] - [\bar{Y}_1 - h_1(\bar{X})],$$

where $\bar{Y}_1$ and $\bar{Y}_2$ are the means of the college attendees' outcome measures before and after they attend college, and $\bar{X}$ is the mean vector for the n vectors of characteristics.[10]

Appendix A describes a multivariate analysis of covariance model that embodies these assumptions. It is implicit in this model that the effects of postsecondary choices are defined as deviations from the pattern for similar individuals in a control group. The selection of a suitable control group is therefore a matter of some importance. For our analysis, we have selected the group of respondents who entered the full-time labor force in 1972 as our control group, against which all other groups are compared. This choice was dictated by three considerations. First, participation in the full-time labor force is the single most frequent postsecondary choice elected by those in the NLS sample; for this reason, it comes closer than any other choice to representing a norm. Second, even for those who make other choices, full-time labor force participation is typically a long-term goal against which other choices are often viewed as preparatory and temporary.[11] Finally, labor force entrants come from widely different backgrounds and include individuals with high and low ability, from all races and socioeconomic levels; this diversity permits estimation of the effects of the full range of background variables on outcome measures, more than might be the case for other groups.

The tables that we present in the next section are based on the use of full-time workers as a comparison group. The reader is free, however, to make other comparisons as well. Each set of tables provides sufficient information to

[10]Some readers may question whether the observations should have been weighted unequally in our analysis to reflect differences in the sample selection probabilities. However, the models used in this study are conditional ones, and it is assumed throughout that the conditional error variances of the observations are equal (except in the dichotomous case). Both the weighted least squares estimators and the ordinary least squares (OLS) estimators are unbiased under standard linear model assumptions, but the OLS estimators have smaller variances. Although the use of weights to estimate certain population parameters (e.g., means) may be advisable, the indiscriminate use of weights in carrying out linear model calculations is not justified by statistical theory.

[11]Even those who initially become homemakers are likely to spend a good deal of their lives in the labor force (Groat, Workman, and Neal, 1976; Waldman, 1970).

permit, for example, comparison of students in four-year colleges with those in two-year colleges.

Finally, we should note that our models of individual effects (like the analyses of change scores discussed below) are applied to males and females separately. The reason for this is that previous research suggests the possibility of important sex differences in the determinants of both self-esteem (Douvan and Gold, 1966) and educational or occupational aspirations (e.g., Alexander and Eckland, 1974; Klemmack and Edwards, 1973; Marini and Greenberger, 1978; Sewell and Shah, 1967, 1968). Since the NLS is one of the few data bases providing a sufficiently large sample size to permit separate analyses for males and females, we have elected to perform separate analyses even when the results were not appreciably different.

Definition and Measurement of Track Effects

Our analysis examines the effects of actually *entering* a particular track after high school. It cannot and does not separate "preexisting differences" (as we refer to them) in outcome measures into their constituent parts; i.e., those associated with the factors that *led up to* the choice of a particular track on the one hand, and those that *followed* the choice (but preceded actual entry into the track) on the other. We shall see, for example, that the NLS respondents who went to college displayed higher educational and occupational aspirations than other respondents while they were still in high school. The NLS data do not permit us to determine whether the initially higher educational and occupational aspirations of college-bound seniors might partly be due to "effects" of anticipating college (including the effects associated with having applied and with being admitted). The effects that follow from the point at which track entry is determined deserve the label "track effects" every bit as much as those that follow from the time of actual entry. Our definition of track effects, therefore, is a conservative one. Lacking the means to distinguish "anticipatory" effects from preexisting differences, we lump the two together and define track effects as deviations from initial values on our measures relative to deviations in a control group.

Change Score Analysis

For each outcome variable for which 1972 measures are available, we present (in addition to the individual effects analysis described above) an analysis of *changes* in the outcome measure over time. In this analysis, the difference between 1976 and 1972 measures is regressed on the same set of backgound variables used in our individual effects analysis, except that: (1) indicator variables are entered for postsecondary tracks, with workers (full-time or part-time) serving as the omitted category; (2) variables describing marital and parenthood status through 1976 are entered as additional independent variables. These variables were added on the basis of a related analysis

(Haggstrom and Morrison, 1979) which established their importance in explaining some of the outcome measures examined here. These variables include:

- Number of months since first married (entered as a positive value for all those ever married, regardless of current status).
- Indicator variable for married respondents as of October 1976.
- Indicator variable for divorced respondents as of October 1976.
- Indicator variable for single respondents who plan to be married by October 1977.
- Three indicator variables for timing of first parenthood: (1) before October 1973; (2) November 1973 to October 1974; (3) November 1974 to October 1976.
- Indicator variable for respondents having two or more children in 1976.

Appendix C provides a brief description of how these variables were coded; additional information may be found in Blaschke, Haggstrom, and Morrison (1979).

The change score analysis provides very rough estimates of track effects—estimates that are based on a different model (and a different set of data points) from that used in our individual effects analysis. For the most part, the change score analysis serves as a means of corroborating findings from the individual effects analysis; to the extent that findings under the two methods agree, our confidence in the findings is enhanced. In addition, the change score analysis provides valuable information on the effects of other variables that are of interest in their own right, including estimates of the direct effects of social background variables (used exclusively as controls in the individual effects analysis), and estimates of the direct effects of family formation variables, net of background factors and postsecondary track.

In interpreting the regression coefficients in the change score analysis, it is important to bear in mind that the analysis differs from the individual effects analysis in several ways. First, unlike the individual effects analysis, the change score analysis implicitly depends on a homogeneity-of-slopes assumption to justify the omission of numerous interaction terms. Second, as noted above, the estimates of track effects from the change score analysis allow for the possible mediating effects of marital status and parenthood. Third, the change score analysis is necessarily restricted to respondents for whom measures are available in both 1972 and 1976.

Finally, we should note that because measurement error is additive, analyses based on change scores will typically result in very low coefficients of determination (values of R^2). An alternative to the strategy of analyzing change scores is to include the pretreatment measure as a covariate in analyzing the posttreatment outcome measures. This latter strategy will typically "explain" much more variance in the outcome measure, but may lead to spurious results. Lord (1967) and Campbell and Erlebacher (1970) have pointed out that such a procedure can lead to estimating large effects when, in fact, the treatments have no effect whatsoever.

IV. RESULTS

This section presents results based on our analyses of individual effects and of changes in outcomes. For the individual effects analysis, our findings will be presented in the form of comparisons among outcome measures over time and across categories of respondents defined by postsecondary track. For each outcome measure, we present: (1) mean values for each category of respondent in each year; (2) corresponding adjusted mean values, for which selected background variables have been controlled; and (3) intergroup differences in these adjusted means, which can be used to estimate the average individual effect associated with each track.

Another type of regression analysis using the 1972-1976 *changes* in outcome measures as dependent variables serves to corroborate or qualify conclusions suggested by the individual effects analysis. This type of analysis also reveals other variables that have an important bearing on changes in outcomes during the first four years after high school.

SELF-ESTEEM

With few exceptions, previous evidence concerning antecedents and consequences of self-esteem rests on cross-sectional studies, which do not permit one to examine *changes* in self-esteem as a function of achievement-related variables, or vice versa. And no previous study has compared groups that have chosen different achievement strategies of the type represented by different postsecondary tracks. On both counts the NLS offers an unusual opportunity.

Tables 12 through 14 provide summary statistics for estimating the *average* effects of postsecondary track on self-esteem. Table 12, in which the raw means for the various categories are reported, reveals how mean scores change over time. In all cases, self-esteem scores increased over the four years, by a total amount averaging about one-half standard deviation. This substantial upward trend parallels similar findings by Bachman and O'Malley (1977), Carlson (1965), Engel (1959), and Kaplan (1975). In studies of other age groups, however, age differences in self-esteem are not commonly found (see Wylie, 1979). Thus, gains in self-esteem during late adolescence and early adulthood seem to represent a developmental phenomenon.

Table 12 also reveals moderate but significant group differences in mean levels of self-esteem within time periods. However, since the NLS sample is not a representative one (schools in low-income areas and schools with high proportions of minority students were oversampled) and since the groups differ considerably on background variables thought to be related to self-esteem, the raw means cannot be used to draw comparisons across categories.

Table 12

Mean Values of the Self-Esteem Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	3.98	4.15	4.23	4.31	2225	2865	2795	2735
2-Year	3.93	4.14	4.19	4.23	950	1266	1180	1172
Voc-Tech	3.88	4.09	4.14	4.19	671	843	805	791
Workers								
Full-time	3.83	4.07	4.13	4.17	2149	2788	2596	2601
Part-time	3.80	4.05	4.08	4.14	453	594	553	553
Military	4.10	4.31	4.24	4.39	13	21	20	20
Homemakers	3.91	4.06	4.09	4.14	407	551	537	521
Unemployed	3.79	4.03	4.07	4.13	659	891	818	804
Unclassified	3.88	4.07	4.14	4.18	838	537	715	724
All Subjects	3.89	4.10	4.15	4.21	8365	10356	10019	9921
MALES								
Students								
4-Year	4.06	4.18	4.27	4.37	2260	2923	2812	2764
2-Year	3.94	4.14	4.23	4.31	1043	1354	1261	1246
Voc-Tech	3.94	4.15	4.22	4.28	375	481	447	452
Workers								
Full-time	3.91	4.13	4.22	4.29	2519	3177	2937	2980
Part-time	3.82	4.09	4.18	4.22	325	425	380	377
Military	3.96	4.17	4.29	4.34	361	429	393	409
Unemployed	3.89	4.10	4.19	4.28	429	527	479	474
Unclassified	3.93	4.09	4.21	4.30	905	428	690	701
All Subjects	3.96	4.14	4.24	4.32	8217	9744	9399	9403

One remedy for this problem is to calculate corresponding "adjusted means," analogous to the adjusted means sometimes reported in conjunction with analysis of covariance. Such adjusted means, shown in Table 13, "control" for differences across the groups on a set of independent variables that appear to be relevant in explaining differences among individuals on the outcome variables.[1]

[1]The independent variables that were used in analyzing the self-esteem outcomes in Tables 12 through 14 were: race/ethnicity indicator variables, regional indicator variables, scholastic aptitude, percentile rank in senior class, indicator variables for high school program, father's education, mother's education, father's occupation index, and an indicator variable for mother's professional status. Specific variables within these categories are listed in Table 5; coding specifications may be found in App. C.

Table 13

Adjusted Mean Values of the Self-Esteem Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	3.92	4.09	4.14	4.20	0.03	0.02	0.03	0.03
2-Year	3.91	4.11	4.15	4.17	0.03	0.02	0.02	0.02
Voc-Tech	3.87	4.08	4.12	4.18	0.03	0.02	0.02	0.02
Workers								
Full-time	3.83	4.07	4.13	4.17	0.01	0.01	0.01	0.01
Part-time	3.81	4.05	4.07	4.14	0.03	0.02	0.02	0.03
Military	4.05	4.29	4.22	4.37	0.18	0.12	0.13	0.13
Homemakers	3.91	4.06	4.10	4.16	0.03	0.02	0.03	0.03
Unemployed	3.77	4.02	4.06	4.13	0.03	0.02	0.02	0.02
Unclassified	3.86	4.05	4.12	4.15	0.02	0.02	0.02	0.02
MALES								
Students								
4-Year	4.04	4.09	4.20	4.32	0.03	0.02	0.02	0.02
2-Year	3.93	4.10	4.21	4.28	0.02	0.02	0.02	0.02
Voc-Tech	3.94	4.13	4.21	4.27	0.03	0.02	0.03	0.03
Workers								
Full-time	3.91	4.13	4.22	4.29	0.01	0.01	0.01	0.01
Part-time	3.82	4.09	4.19	4.22	0.04	0.03	0.03	0.03
Military	3.94	4.16	4.28	4.33	0.03	0.03	0.03	0.03
Unemployed	3.87	4.10	4.19	4.29	0.03	0.02	0.03	0.02
Unclassified	3.91	4.07	4.20	4.28	0.02	0.03	0.02	0.02

The adjusted means and the standard errors in Table 13 enable comparisons between any two categories. Table 14 furnishes the intergroup comparisons that result from using the group of full-time workers (as of October 1972) as a control group. The t-statistic for testing the hypothesis of no difference between this group and any other can be obtained by dividing the difference by the corresponding standard error.

The pattern of differences in Table 14 suggests that although several initial track-related differences in self-esteem remain after controlling for background differences, they are generally quite small and tend to lessen over time. Among women, for example, those attending college or serving as homemakers begin with slightly higher self-esteem than those in the labor force, but this difference vanishes over time. Similarly, males enrolled in a four-year college display

Table 14

Intergroup Differences in Adjusted Means for the Self-Esteem Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.09	0.02	0.01	0.02	0.03	0.03	0.03	0.03
2-Year	0.08	0.04	0.03	0.00	0.03	0.02	0.02	0.02
Voc-Tech	0.04	0.00	0.00	0.01	0.03	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.02	-0.02	-0.05	-0.04	0.03	0.03	0.03	0.03
Military	0.22	0.22	0.09	0.20	0.18	0.12	0.13	0.13
Homemakers	0.08	-0.01	-0.03	-0.02	0.04	0.03	0.03	0.03
Unemployed	-0.06	-0.05	-0.07	-0.04	0.03	0.02	0.02	0.03
Unclassified	0.03	-0.02	0.00	-0.02	0.03	0.03	0.03	0.03
MALES								
Students								
4-Year	0.13	-0.04	-0.02	0.02	0.03	0.02	0.03	0.02
2-Year	0.02	-0.03	-0.02	-0.01	0.03	0.02	0.02	0.02
Voc-Tech	0.03	0.00	-0.02	-0.02	0.04	0.03	0.03	0.03
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.09	-0.04	-0.03	-0.07	0.04	0.03	0.03	0.03
Military	0.03	0.03	0.06	0.04	0.04	0.03	0.03	0.03
Unemployed	-0.04	-0.03	-0.03	0.00	0.03	0.02	0.03	0.03
Unclassified	0.00	-0.05	-0.02	0.00	0.03	0.03	0.02	0.02

higher initial self-esteem than workers—but this initial difference disappears within a year. Only male part-time workers show persisting differences, but these differences do not increase over time.

These results are entirely consistent with the view that global self-esteem is not appreciably affected by postsecondary track. In a sense, this should not be surprising; many other macro-level variables have been shown to be unrelated to self-esteem (Wylie, 1979). The question is how to interpret these negative findings. Oversimplifying somewhat, we can outline three possible explanations. First, self-esteem may be an unimportant variable, the contrary view of many theorists notwithstanding. Second, the negative findings may result from

inadequacies in self-esteem *measures*, rather than difficulties with the concept itself. Measures of global self-esteem are known to have been plagued with definitional ambiguities, response biases, ceiling effects, and other methodological problems (Wells and Marwell, 1976; Wylie, 1974). Until we are confident that self-esteem has been appropriately measured, the occurrence of negative findings will continue to present a certain ambiguity.[2]

In this study, self-esteem is measured by a truncated version of the Rosenberg self-esteem scale. Not surprisingly, the four-item scale used in the NLS is somewhat less reliable than the full ten-item scale. Nonetheless, its internal consistency and stability are sufficiently high that they do not, in our view, explain the negative findings.[3]

Third, the largely negative findings may reflect oversimple theories. Both Rosenberg (1979) and Wylie (1979) have recently argued that our understanding of self-esteem is likely to improve only if researchers are willing to (1) shift their research attention from self-esteem as an outcome to self-esteem *maintenance* as a process; (2) pay closer attention to specific dimensions of self-esteem and to their relative importance (centrality) to the individual; and (3) examine the interactive effects of independent variables instead of searching for main effects.

Since our results accord with the general pattern of negative findings so exhaustively described by Wylie (1979), we cannot claim to assess the value of the prescriptions that she and Rosenberg offer. We note, however, that our results derive from a data base that is sufficiently large to detect even very small effects. Therefore, our negative findings carry considerable weight.

The results of our change-score analysis are summarized in Table 15. With ability and other factors controlled, rank in high school class exerted a negative effect on subsequent changes in self-esteem. The factors that lead to success or failure in high school are to some degree specific to the high school situation. When evaluation criteria shift, as they must to accommodate the requirements of new roles, so does the basis for self-evaluation. Thus, whereas class standing had a positive effect on self-esteem measured in 1972, this effect did not persist much beyond graduation. (The reader interested in examining our separate regression models for 1972 and subsequent years should consult App. G.)

Table 15 also reveals a number of sex-specific predictors of self-esteem changes. For example, academic ability is positively related to gains in self-esteem among men but not among women. The coefficients associated with marriage and parenthood also differ by sex. For men, marriage is positively related to self-esteem gains, but this relationship does not hold for women. For

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[2]There is, of course, a certain circularity to this argument. We suspect that were the findings of self-esteem research more encouraging, the measures themselves would be subject to less criticism. Nothing about a measure reassures a scientist more than a pattern of sensible variation in response to other variables.

[3]The National Center for Education Statistics (1977) reports a coefficient alpha of 0.66 for the four-item scale, based on the responses of more than 16,000 base year respondents. Our own analysis, based on cross-wave comparisons within the control group of full-time workers in 1972, shows that test-retest correlations from each wave to the immediately succeeding wave average 0.45 for females and 0.33 for males.

Table 15

Regression Results for the Change in Self-Esteem Between 1972 and 1976

Variable	Females b	Females t	Males b	Males t
Constant	0.335	3.6	0.094	1.1
Race/Ethnicity				
Black	-0.083	-2.9	-0.024	-0.8
Hispanic	0.014	0.3	0.027	0.6
Indian	0.103	1.2	-0.062	-0.8
Oriental	0.265	3.2	-0.042	-0.6
Other minority	-0.092	-1.6	-0.075	-1.4
Region				
Northeast	-0.003	-0.1	-0.037	-1.5
South	-0.091	-4.0	-0.069	-3.1
West	-0.072	-2.6	-0.069	-2.6
High school measures				
Ability	0.0005	1.1	0.0015	4.0
Percentile rank in class	-0.0021	-5.1	-0.0021	-5.2
Academic program	0.004	0.2	-0.039	-1.8
Vocational-technical program	-0.013	-0.6	-0.007	-0.3
Family background				
Father's education	-0.0027	-0.6	0.0044	1.0
Mother's education	0.0075	1.3	0.0049	0.9
Father's occupation (SEI)	0.0007	1.5	0.0002	0.5
Mother's professional status	-0.034	-1.1	0.013	0.4
Postsecondary track (1972)				
4-year student	0.002	0.1	-0.060	-2.3
2-year student	-0.020	-0.7	-0.004	-0.1
Vocational-technical student	-0.010	-0.3	-0.021	-0.5
Military	-0.026	-0.1	0.026	0.6
Homemaker	-0.091	-2.2		
Unemployed	0.024	0.7	0.037	1.0
Marital status (1976)				
Months since first marriage	0.0010	1.2	-0.0006	-0.6
Married	0.002	0.1	0.098	3.2
Divorced, widowed, or separated	0.024	0.5	0.067	1.1
Expecting to be married	0.033	1.1	0.036	1.2
Parenthood				
Parent by October 1973	-0.088	-2.1	-0.023	-0.4
Parent Nov. 1973 to Oct. 1974	-0.105	-2.8	-0.029	-0.6
Parent Nov. 1974 to Oct. 1976	-0.073	-2.5	-0.041	-1.3
Expecting parenthood, 1976	0.016	0.4	-0.037	-0.9
Two or more children, 1976	0.026	0.7	0.028	0.6
R^2	0.017		0.016	
S	0.721		0.697	
F	4.2		3.7	
N	7350		6981	

women, the gain scores are negatively associated with homemaker status in 1972 and with each of three parenthood indicators. One might be tempted to interpret this pattern of coefficients as supporting the notion that the traditional woman's role is not conducive to positive mental health.[4] The data, however, are not altogether consistent with this notion. At no time do homemakers or mothers display a *deficit* in self-esteem compared with other women. Rather, they begin with *higher* self-esteem than other women,[5] display fewer gains during the four-year interval, and end at about the same level as other women in 1976.

A similar point can be made regarding the negative coefficient for self-esteem changes among black women. Blacks of both sexes displayed significantly higher self-esteem than whites in 1972.[6] However, this initial difference narrowed over time, so that with other factors controlled, neither black men nor black women differed significantly from whites in 1976. Black women, who displayed the largest initial difference from their white counterparts, gained significantly less over the four-year period.

Finally, we note that in this analysis as in others presented ahead, changes in outcome measures vary significantly by region. Because of this variation, we have included regional indicator variables in our model for control purposes. We do not, however, offer substantive interpretations for regional "effects," lacking evidence about their underlying causes.[7]

LOCUS OF CONTROL

Locus of control has a stronger conceptual status than global self-esteem and its value in predicting behavior also seems greater,[8] yet there is considerably less research into its antecedents. Most previous work suffers from one or more limitations including specialized populations (prisoners, the unemployed, alcoholics, attempted suicides, college sophomores), reliance on

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[4]A number of investigators have argued that women who serve as full-time homemakers are more likely to display symptoms of low self-esteem, boredom, and dissatisfaction with their lives (e.g., Birnbaum, 1971, 1975; Feld, 1963; Ferree, 1976a, 1976b; Newberry, Weissman, and Myers, 1979). Most studies that have addressed this question have been based on comparisons between small nonrandom samples of working and nonworking women. Studies based on national probability samples have produced conflicting findings: Feld (1963) found evidence of self-concept impairment among housewives, while Wright (1978), analyzing data from several national surveys, found no consistent difference between housewives and working women in overall life satisfaction.

[5]For evidence on "initial" self-esteem among 1972 homemakers, see Tables 13 and 14; for similar evidence on mothers, see Haggstrom and Morrison (1979, pp. 23-24).

[6]This finding, documented in App. G, is consistent with those of numerous other studies cited earlier.

[7]Regions may vary, for example, in their labor markets, average high school characteristics, opportunities for higher education, etc.

[8]The locus of control measure used in the present study also yields scores that are slightly more stable over time than the self-esteem scores. Within the control group of full-time workers in 1972, test-retest correlations across adjacent waves average 0.50 for females and 0.46 for males. The National Center for Education Statistics (1977) reports a coefficient alpha of 0.56, somewhat lower than for the four-item self-esteem scale.

retrospective studies concerning highly subjective phenomena (parental nurturance and warmth, the consistency with which punishments were administered during childhood, etc.), and reliance on cross-sectional rather than longitudinal data. Despite these limitations, previous studies have fairly consistently shown that: (1) those scoring high in internal locus of control tend to display higher achievement than "externals"; (2) this relationship is generally stronger for males than for females; and (3) blacks and people from lower socioeconomic levels tend to be more external. (For reviews of the pertinent literature, see Lefcourt, 1976, and Phares, 1976.)

Data from a broad sample—preferably longitudinal—have long been needed. Thus the NLS fills a particularly important gap.

Tables 16 to 18 provide summary statistics for assessing the magnitude of track effects associated with locus of control. Table 16 shows that scores on the locus of control measure, like those on self-esteem, increased over the four-year period. However, the increase was quite small, averaging about 0.28 standard deviation for males and 0.16 standard deviation for females.[9]

Table 16 also reveals sharp differences associated with choice of postsecondary track. The highest average scores are obtained by students, the lowest by the unemployed and by male part-time workers.

These differences shrink considerably when preexisting differences in background characteristics are taken into account. Table 17 provides the adjusted means that result from controlling between group differences in the same set of background variables used in the self-esteem analysis.

The intergroup differences that remain after this adjustment is made are summarized in Table 18. For males, these differences form a pattern that strongly suggests a track effect: men who enter the full-time labor force or military service experience larger and more rapid gains in internality than do those who continue their education. This effect largely occurs during the first year following graduation, after which further changes are roughly parallel between groups.

Our change score analysis (see Table 19) corroborates this finding and provides additional evidence that aids in its interpretation. Among males, gains in locus of control are negatively related to college attendance (whether two-year or four-year) and to academic ability. Male high school graduates who do not attend college and/or do not have high academic ability experience an increased sense of control over their lives after graduation. Such an increase makes sense if one assumes that academic ability and its byproducts are more highly rewarded in the school environment than, say, in the labor market. Those who lack the specialized ability to succeed in school environments may find that the outside world offers new opportunities to exercise effective control over their lives.

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[9]Crandall, Katkovsky, and Crandall (1965) report findings from a cross-sectional analysis of data on high school seniors indicating that locus of control scores tend to be lower among males than among females. This difference does not appear in earlier grades. The NLS data reveal a similar sex difference in the twelfth grade, but the difference diminishes after high school graduation. Both studies suggest that sex differences may be age-specific.

Table 16

Mean Values of the Locus of Control Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	4.05	4.04	4.05	4.10	2222	2865	2796	2734
2-Year	3.90	3.94	3.95	3.99	952	1267	1177	1173
Voc-Tech	3.73	3.82	3.84	3.85	669	842	802	791
Workers								
Full-time	3.69	3.77	3.79	3.83	2151	2788	2591	2601
Part-time	3.65	3.78	3.77	3.88	454	594	553	551
Military	3.90	3.82	3.74	3.77	13	21	20	20
Homemakers	3.62	3.72	3.68	3.75	407	551	535	519
Unemployed	3.51	3.63	3.60	3.66	656	888	817	804
Unclassified	3.65	3.73	3.74	3.81	836	536	715	724
All Subjects	3.79	3.86	3.86	3.91	8360	10352	10006	9917
MALES								
Students								
4-Year	3.94	3.97	3.96	4.06	2258	2921	2809	2763
2-Year	3.75	3.83	3.84	3.93	1043	1353	1261	1245
Voc-Tech	3.64	3.73	3.72	3.79	373	480	444	452
Workers								
Full-time	3.45	3.66	3.64	3.74	2517	3172	2932	2978
Part-time	3.42	3.60	3.66	3.64	325	424	380	376
Military	3.59	3.79	3.85	3.87	361	428	392	409
Unemployed	3.44	3.60	3.58	3.67	426	522	478	474
Unclassified	3.58	3.70	3.75	3.82	901	428	689	701
All Subjects	3.65	3.78	3.78	3.86	8204	9728	9385	9398

We should emphasize, however, that this track effect pertains only to men. Thus, while women's sense of control over their lives is just as strongly related to their academic ability and performance during high school (see App. G), it is less apt to change in response to their postsecondary choices.[10]

[10]The change score analysis for women reveals a negative coefficient for rank in high school class. Thus, when ability is controlled, women who perform less well in high school show somewhat stronger gains in locus of control than those who perform well. Ability itself retains a strong positive relationship to locus of control throughout the four years, but is unrelated to *changes* in locus of control among women.

Table 17

Adjusted Mean Values of the Locus of Control Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	3.70	3.76	3.75	3.79	0.03	0.03	0.03	0.03
2-Year	3.75	3.81	3.82	3.82	0.03	0.02	0.02	0.03
Voc-Tech	3.70	3.80	3.82	3.83	0.03	0.02	0.02	0.03
Workers								
Full-time	3.69	3.77	3.79	3.83	0.01	0.01	0.01	0.01
Part-time	3.66	3.78	3.78	3.87	0.03	0.03	0.03	0.03
Military	3.87	3.84	3.76	3.79	0.18	0.14	0.15	0.15
Homemakers	3.69	3.80	3.75	3.82	0.03	0.03	0.03	0.03
Unemployed	3.62	3.75	3.72	3.77	0.03	0.02	0.02	0.03
Unclassified	3.67	3.76	3.78	3.82	0.02	0.03	0.03	0.03
MALES								
Students								
4-Year	3.56	3.67	3.61	3.73	0.03	0.03	0.03	0.03
2-Year	3.57	3.67	3.66	3.76	0.03	0.02	0.03	0.02
Voc-Tech	3.55	3.67	3.65	3.72	0.04	0.03	0.03	0.03
Workers								
Full-time	3.45	3.66	3.64	3.74	0.01	0.01	0.01	0.01
Part-time	3.42	3.61	3.67	3.65	0.04	0.03	0.04	0.04
Military	3.56	3.78	3.83	3.85	0.04	0.03	0.04	0.03
Unemployed	3.46	3.63	3.61	3.71	0.04	0.03	0.03	0.03
Unclassified	3.52	3.65	3.69	3.76	0.03	0.03	0.03	0.03

Significant racial differences also emerge from our change score analysis. When other factors are controlled, blacks show weaker gains in their sense of control over their lives. This suggests that postsecondary experiences are on balance less likely to contribute to blacks' sense of personal efficacy. Since blacks display somewhat lower locus of control scores to begin with,[11] the lesser growth these scores exhibit over the four-year period results in an ever-widening gap.

[11]Initial differences are not, however, as great as one might suppose. Among those who enter the full-time labor force, the base year regression coefficient for black women is −0.106 and for black men it is −0.091. The former is statistically significant, the latter not. By 1976, these coefficients were −0.177 and −0.274, respectively—both highly significant. In interpreting the size of the initial differences, it should be remembered that the comparison is made within a restricted group—high school graduates who were working full-time in October 1972. Inclusion of high school dropouts (disproportionately black) and college students (disproportionately white) would probably increase the size of these coefficients.

Table 18

Intergroup Differences in Adjusted Means for the Locus of Control Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.01	-0.01	-0.04	-0.04	0.03	0.03	0.03	0.03
2-Year	0.05	0.04	0.03	0.00	0.03	0.03	0.03	0.03
Voc-Tech	0.00	0.03	0.03	0.00	0.03	0.03	0.03	0.03
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.03	0.01	-0.02	0.04	0.03	0.03	0.03	0.03
Military	0.18	0.07	-0.04	-0.04	0.18	0.14	0.15	0.15
Homemakers	0.00	0.03	-0.04	0.00	0.04	0.03	0.03	0.03
Unemployed	-0.07	-0.02	-0.07	-0.06	0.03	0.03	0.03	0.03
Unclassified	-0.02	0.00	-0.02	-0.01	0.03	0.03	0.03	0.03
MALES								
Students								
4-Year	0.11	0.01	-0.03	-0.01	0.04	0.03	0.03	0.03
2-Year	0.12	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Voc-Tech	0.10	0.01	0.01	-0.02	0.04	0.03	0.04	0.04
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.03	-0.05	0.03	-0.09	0.04	0.03	0.04	0.04
Military	0.11	0.12	0.19	0.11	0.04	0.03	0.04	0.04
Unemployed	0.01	-0.03	-0.03	-0.03	0.04	0.03	0.04	0.03
Unclassified	0.07	0.00	0.05	0.02	0.03	0.03	0.03	0.03

The change score analysis also reveals significant marriage and parenthood effects for males (but not for females). Married men show stronger gains in locus of control than the unmarried, but those with two or more children by 1976 experience smaller gains. The former effect seems to echo the similar sex-specific gain in self-esteem among married men;[12] the latter probably reflects the effects that financial responsibility can have on real or perceived life options. Finally, we note that when controls are entered for two or more children, the coefficient associated with early parenthood takes on a significant *positive* value. Men who became parents within 16 months of high school

[12]The two variables are not, however, highly correlated. Within the control group of full-time workers in 1972, self-esteem and locus of control correlate 0.13, 0.16, 0.21, and 0.20 among women in 1972, 1973, 1974, and 1976, respectively; the corresponding correlations for men are 0.06, 0.16, 0.13, and 0.21.

Table 19

Regression Results for the Change in Locus of Control Between 1972 and 1976

Variable	Females b	Females t	Males b	Males t
Constant	0.516	5.5	0.378	3.7
Race/Ethnicity				
Black	-0.096	-3.3	-0.135	-3.8
Hispanic	0.020	0.4	-0.047	-0.9
Indian	0.149	1.7	-0.099	-1.1
Oriental	0.049	0.6	0.024	0.3
Other minority	0.095	1.7	-0.028	-0.4
Region				
Northeast	-0.039	-1.5	-0.040	-1.4
South	-0.031	-1.4	-0.014	-0.5
West	-0.017	-0.6	0.015	0.5
High school measures				
Ability	-0.0007	-1.7	-0.0014	-3.2
Percentile rank in class	-0.0022	-5.2	-0.0008	-1.7
Academic program	-0.018	-0.8	-0.001	-0.0
Vocational-technical program	-0.016	-0.7	0.032	1.2
Family background				
Father's education	0.0027	0.6	0.0065	1.3
Mother's education	-0.0129	-2.2	0.0117	1.8
Father's occupation (SEI)	0.0011	2.4	-0.0007	-1.3
Mother's professional status	0.004	0.1	-0.094	-2.7
Postsecondary track (1972)				
4-year student	-0.027	-1.0	-0.088	-2.9
2-year student	-0.019	-0.6	-0.086	-2.7
Vocational-technical student	-0.008	-0.3	-0.073	-1.6
Military	-0.191	-1.1	-0.032	-0.7
Homemaker	-0.007	-0.2		
Unemployed	0.040	1.2	-0.020	-0.4
Marital status (1976)				
Months since first marriage	0.0007	0.9	-0.0010	-0.8
Married	0.026	0.9	0.107	3.1
Divorced, widowed, or separated	-0.026	-0.5	-0.084	-1.2
Expecting to be married	0.016	0.5	0.004	0.1
Parenthood				
Parent by October 1973	-0.052	-1.2	0.205	2.9
Parent Nov. 1973 to Oct. 1974	-0.039	-1.0	0.017	0.3
Parent Nov. 1974 to Oct. 1976	-0.057	-1.9	-0.059	-1.6
Expecting parenthood, 1976	-0.027	-0.7	0.068	1.5
Two or more children, 1976	-0.054	-1.4	-0.211	-3.9
R^2	0.019		0.022	
S	0.732		0.806	
F	4.7		5.1	
N	7346		6970	

graduation display greater gains in locus of control than do other men. This gain, however, represents recovery from an earlier deficit[13] and suggests that for men, some of the adverse psychological effects associated with early parenthood diminish over time.

WORK, FAMILY, AND COMMUNITY ORIENTATION

Tables 20 to 28 provide the summary statistics for our individual effects analysis of work, family, and community orientations.[14] These variables measure the importance that the individual places on the fulfillment of values associated with disparate roles. For this reason, changes in these measures can signal important shifts in the relative importance of these dimensions to the individual's developing sense of self. There is good reason to believe that postsecondary choices might have enduring effects on these role orientations. The choice to pursue one track over another represents a commitment that channels energies in a particular direction, and therefore exposes the individual to the gratifications and frustrations associated with that choice. While it is true that what people choose to do is affected by what they consider important, the reverse is also true: What they consider important can be affected by what they choose to do. The analysis described below provides evidence of the effect of choice upon value and suggests that it is especially important among women.

Tables 20 and 23 show consistent overall sex differences in work orientation (males score higher) and family orientation (females score higher), but there is no consistent sex difference in community orientation (Table 26). On average, both sexes become more strongly oriented toward family values and less oriented toward work and community values over the four-year period.

For the most part, initial group differences on these measures—both before and after adjusting for background differences—are quite small. Unsurprisingly, homemakers exhibit a stronger family orientation and a weaker work orientation than do working women (see Tables 22 and 25). Also, males who are working only part-time in 1972 score lower in both work and family orientation than do full-time workers. Finally, students of both sexes, along with men who enter military service, exhibit a stronger community orientation than do workers (see Table 28).

Examination of the pattern of *changes* in these intergroup differences reveals evidence of track effects, particularly among women. Pursuit of higher education increases women's orientation toward work (relative to full-time

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[13]See Haggstrom and Morrison (1979), pp. 26-28.

[14]The National Center for Education Statistics (1977) reports relatively low internal consistency coefficients for these scales. Coefficient alphas calculated from the base year data were 0.53, 0.30, and 0.44 for the work, family, and community orientation scales, respectively. Our analysis of the test-retest stability of these scores across adjacent waves revealed average correlations of 0.42 (men) and 0.38 (women) for the work orientation scale, 0.42 (men) and 0.38 (women) for the family orientation scale, and 0.48 (for each sex) for the community orientation scale.

Table 20

Mean Values of the Work Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	2.42	2.38	2.35	2.40	2225	2865	2777	2736
2-Year	2.49	2.42	2.40	2.39	951	1271	1180	1174
Voc-Tech	2.52	2.44	2.44	2.38	669	845	801	792
Workers								
Full-time	2.48	2.34	2.36	2.31	2151	2791	2587	2607
Part-time	2.43	2.30	2.32	2.29	454	600	554	553
Military	2.36	2.48	2.28	2.32	13	21	20	20
Homemakers	2.41	2.22	2.26	2.23	406	553	533	526
Unemployed	2.48	2.34	2.36	2.32	659	893	811	803
Unclassified	2.47	2.39	2.40	2.33	838	535	720	726
All Subjects	2.46	2.36	2.36	2.35	8366	10374	9983	9937
MALES								
Students								
4-Year	2.56	2.46	2.44	2.49	2259	2928	2800	2761
2-Year	2.59	2.51	2.50	2.51	1047	1357	1255	1250
Voc-Tech	2.61	2.55	2.53	2.57	377	484	446	453
Workers								
Full-time	2.62	2.55	2.55	2.54	2525	3185	2933	2988
Part-time	2.55	2.52	2.51	2.50	326	425	381	376
Military	2.58	2.49	2.51	2.53	361	430	391	408
Unemployed	2.53	2.48	2.52	2.52	428	526	477	476
Unclassified	2.59	2.56	2.50	2.51	905	428	686	704
All Subjects	2.59	2.51	2.50	2.52	8228	9763	9369	9416

Table 21

Adjusted Mean Values of the Work Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	2.48	2.42	2.40	2.41	0.02	0.02	0.02	0.02
2-Year	2.52	2.43	2.42	2.39	0.01	0.01	0.01	0.02
Voc-Tech	2.52	2.44	2.43	2.37	0.01	0.01	0.01	0.02
Workers								
Full-time	2.48	2.34	2.36	2.31	0.01	0.01	0.01	0.01
Part-time	2.44	2.30	2.32	2.28	0.02	0.02	0.02	0.02
Military	2.34	2.45	2.26	2.29	0.09	0.09	0.09	0.09
Homemakers	2.39	2.20	2.24	2.22	0.02	0.02	0.02	0.02
Unemployed	2.44	2.29	2.31	2.28	0.01	0.01	0.01	0.02
Unclassified	2.46	2.36	2.37	2.30	0.01	0.02	0.02	0.02
MALES								
Students								
4-Year	2.64	2.53	2.54	2.54	0.02	0.01	0.01	0.01
2-Year	2.64	2.55	2.55	2.53	0.01	0.01	0.01	0.01
Voc-Tech	2.63	2.56	2.55	2.57	0.02	0.02	0.02	0.02
Workers								
Full-time	2.62	2.55	2.55	2.54	0.01	0.01	0.01	0.01
Part-time	2.56	2.52	2.50	2.50	0.02	0.02	0.02	0.02
Military	2.59	2.50	2.52	2.53	0.02	0.02	0.02	0.02
Unemployed	2.53	2.47	2.51	2.52	0.02	0.01	0.02	0.02
Unclassified	2.61	2.57	2.52	2.52	0.01	0.02	0.01	0.01

Table 22

Intergroup Differences in Adjusted Means for the Work Orientation Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.01	0.08	0.04	0.10	0.02	0.02	0.02	0.02
2-Year	0.04	0.09	0.06	0.08	0.02	0.02	0.02	0.02
Voc-Tech	0.04	0.10	0.07	0.06	0.02	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.04	-0.03	-0.04	-0.02	0.02	0.02	0.02	0.02
Military	-0.14	0.11	-0.10	-0.02	0.09	0.09	0.09	0.09
Homemakers	-0.09	-0.14	-0.12	-0.09	0.02	0.02	0.02	0.02
Unemployed	-0.04	-0.05	-0.05	-0.03	0.02	0.02	0.02	0.02
Unclassified	-0.02	0.03	0.01	-0.01	0.01	0.02	0.02	0.02
MALES								
Students								
4-Year	0.02	-0.01	-0.01	0.00	0.02	0.01	0.02	0.02
2-Year	0.02	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Voc-Tech	0.01	0.01	0.00	0.03	0.02	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.06	-0.03	-0.05	-0.04	0.02	0.02	0.02	0.02
Military	-0.03	-0.05	-0.03	0.00	0.02	0.02	0.02	0.02
Unemployed	-0.09	-0.07	-0.04	-0.03	0.02	0.02	0.02	0.02
Unclassified	0.00	0.03	-0.03	-0.03	0.01	0.02	0.01	0.01

Table 23

Mean Values of the Family Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.94	1.02	1.03	1.07	2200	2831	2760	2719
2-Year	0.99	1.04	1.07	1.09	940	1254	1171	1166
Voc-Tech	0.95	1.05	1.11	1.11	659	834	800	783
Workers								
Full-time	0.95	1.07	1.10	1.11	2131	2748	2563	2572
Part-time	0.91	1.06	1.10	1.10	448	588	548	549
Military	0.57	0.77	0.92	0.80	13	20	20	20
Homemakers	1.00	1.12	1.15	1.13	399	540	523	516
Unemployed	0.92	1.05	1.06	1.07	646	874	800	786
Unclassified	0.90	1.03	1.04	1.07	821	520	709	715
All Subjects	0.95	1.05	1.07	1.09	8257	10209	9894	9826
MALES								
Students								
4-Year	0.92	0.99	0.98	1.01	2233	2879	2780	2737
2-Year	0.94	1.01	1.04	1.04	1033	1339	1245	1231
Voc-Tech	0.96	1.02	1.07	1.06	370	473	439	446
Workers								
Full-time	0.92	1.01	1.03	1.04	2466	3130	2904	2950
Part-time	0.86	0.96	0.99	1.02	321	424	377	370
Military	0.84	0.94	0.95	0.94	356	425	387	404
Unemployed	0.80	0.94	0.96	1.00	413	515	468	471
Unclassified	0.86	0.98	1.01	1.01	891	414	678	690
All Subjects	0.91	1.00	1.01	1.02	8083	9599	9278	9299

Table 24

Adjusted Mean Values of the Family Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	1.01	1.06	1.08	1.10	0.02	0.01	0.02	0.02
2-Year	1.03	1.07	1.10	1.12	0.02	0.01	0.01	0.01
Voc-Tech	0.97	1.06	1.13	1.12	0.02	0.01	0.01	0.01
Workers								
Full-time	0.95	1.07	1.10	1.11	0.01	0.01	0.01	0.01
Part-time	0.93	1.07	1.11	1.11	0.02	0.01	0.02	0.02
Military	0.58	0.78	0.94	0.84	0.11	0.08	0.08	0.08
Homemakers	1.00	1.13	1.15	1.14	0.02	0.02	0.02	0.02
Unemployed	0.94	1.06	1.08	1.10	0.02	0.01	0.01	0.01
Unclassified	0.94	1.06	1.06	1.10	0.02	0.02	0.01	0.01
MALES								
Students								
4-Year	0.94	1.02	1.01	1.02	0.02	0.02	0.02	0.01
2-Year	0.96	1.03	1.07	1.05	0.02	0.01	0.01	0.01
Voc-Tech	0.97	1.03	1.08	1.06	0.02	0.02	0.02	0.02
Workers								
Full-time	0.92	1.01	1.03	1.04	0.01	0.01	0.01	0.01
Part-time	0.87	0.97	1.01	1.03	0.02	0.02	0.02	0.02
Military	0.84	0.95	0.95	0.95	0.02	0.02	0.02	0.02
Unemployed	0.80	0.96	0.97	1.01	0.02	0.02	0.02	0.02
Unclassified	0.87	1.00	1.03	1.02	0.01	0.02	0.01	0.01

Table 25

Intergroup Differences in Adjusted Means for the Family Orientation Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.05	0.00	-0.02	0.00	0.02	0.02	0.02	0.02
2-Year	0.08	0.01	0.00	0.01	0.02	0.01	0.01	0.01
Voc-Tech	0.01	0.00	0.02	0.01	0.02	0.01	0.01	0.01
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.02	0.01	0.01	0.00	0.02	0.02	0.02	0.02
Military	-0.37	-0.28	-0.16	-0.27	0.11	0.08	0.08	0.08
Homemakers	0.05	0.06	0.04	0.03	0.02	0.02	0.02	0.02
Unemployed	-0.01	0.00	-0.03	0.00	0.02	0.01	0.01	0.01
Unclassified	-0.01	0.00	-0.04	0.00	0.02	0.02	0.02	0.02
MALES								
Students								
4-Year	0.02	0.01	-0.01	-0.03	0.02	0.02	0.02	0.02
2-Year	0.04	0.02	0.04	0.01	0.02	0.01	0.01	0.01
Voc-Tech	0.05	0.02	0.05	0.02	0.02	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.05	-0.04	-0.02	-0.01	0.02	0.02	0.02	0.02
Military	-0.08	-0.06	-0.07	-0.10	0.02	0.02	0.02	0.02
Unemployed	-0.12	-0.05	-0.05	-0.03	0.02	0.02	0.02	0.02
Unclassified	-0.05	-0.01	0.00	-0.03	0.02	0.02	0.02	0.01

Table 26

Mean Values of the Community Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	2.16	2.02	2.00	1.94	2224	2861	2777	2736
2-Year	2.15	2.03	2.00	1.93	949	1267	1179	1174
Voc-Tech	2.15	2.06	2.03	1.98	667	845	801	792
Workers								
Full-time	2.12	2.03	1.98	1.95	2150	2789	2585	2606
Part-time	2.06	1.98	1.96	1.92	454	599	552	553
Military	2.10	2.11	2.00	1.90	13	21	20	20
Homemakers	2.18	2.08	2.02	2.02	406	554	533	527
Unemployed	2.12	2.08	2.01	2.00	658	890	813	801
Unclassified	2.14	2.05	2.00	1.97	832	532	719	726
All Subjects	2.14	2.04	2.00	1.96	8353	10358	9979	9935
MALES								
Students								
4-Year	2.13	2.03	2.00	1.98	2258	2924	2798	2759
2-Year	2.13	2.07	2.03	2.00	1044	1352	1255	1248
Voc-Tech	2.15	2.07	2.04	2.02	376	483	446	453
Workers								
Full-time	2.13	2.07	2.03	2.01	2516	3177	2927	2985
Part-time	2.10	2.06	2.03	2.03	326	426	379	376
Military	2.22	2.19	2.16	2.12	361	429	391	409
Unemployed	2.09	2.11	2.06	2.04	423	524	477	475
Unclassified	2.12	2.09	2.04	2.05	906	424	686	704
All Subjects	2.13	2.07	2.03	2.01	8210	9739	9359	9409

Table 27

Adjusted Mean Values of the Community Orientation Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	2.19	2.09	2.07	2.02	0.02	0.02	0.02	0.02
2-Year	2.18	2.06	2.04	1.97	0.02	0.01	0.01	0.01
Voc-Tech	2.15	2.06	2.03	1.98	0.02	0.01	0.01	0.01
Workers								
Full-time	2.12	2.03	1.98	1.95	0.01	0.01	0.01	0.01
Part-time	2.06	1.99	1.97	1.93	0.02	0.02	0.02	0.02
Military	2.06	2.07	1.98	1.88	0.11	0.09	0.09	0.09
Homemakers	2.15	2.04	1.99	1.99	0.02	0.02	0.02	0.02
Unemployed	2.07	2.01	1.96	1.94	0.02	0.01	0.01	0.01
Unclassified	2.12	2.03	1.99	1.95	0.02	0.02	0.02	0.02
MALES								
Students								
4-Year	2.20	2.11	2.08	2.05	0.02	0.02	0.02	0.02
2-Year	2.18	2.11	2.08	2.04	0.02	0.02	0.02	0.02
Voc-Tech	2.17	2.09	2.05	2.04	0.02	0.02	0.02	0.02
Workers								
Full-time	2.13	2.07	2.03	2.01	0.01	0.01	0.01	0.01
Part-time	2.10	2.05	2.02	2.03	0.02	0.02	0.02	0.02
Military	2.20	2.17	2.14	2.10	0.02	0.02	0.02	0.02
Unemployed	2.07	2.09	2.03	2.02	0.02	0.02	0.02	0.02
Unclassified	2.13	2.09	2.06	2.06	0.02	0.02	0.02	0.02

Table 28

Intergroup Differences in Adjusted Means for the Community Orientation Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	0.07	0.06	0.09	0.07	0.02	0.02	0.02	0.02
2-Year	0.06	0.02	0.06	0.02	0.02	0.02	0.02	0.02
Voc-Tech	0.03	0.02	0.05	0.02	0.02	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.06	-0.05	0.00	-0.02	0.02	0.02	0.02	0.02
Military	-0.06	0.03	0.00	-0.07	0.11	0.09	0.09	0.09
Homemakers	0.03	0.00	0.01	0.04	0.02	0.02	0.02	0.02
Unemployed	-0.05	-0.03	-0.02	-0.01	0.02	0.02	0.02	0.02
Unclassified	0.00	0.00	0.01	0.00	0.02	0.02	0.02	0.02
MALES								
Students								
4-Year	0.07	0.04	0.05	0.04	0.02	0.02	0.02	0.02
2-Year	0.05	0.04	0.05	0.04	0.02	0.02	0.02	0.02
Voc-Tech	0.04	0.02	0.02	0.03	0.02	0.02	0.02	0.02
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.03	-0.02	0.00	0.02	0.03	0.02	0.02	0.02
Military	0.07	0.10	0.11	0.09	0.02	0.02	0.02	0.02
Unemployed	-0.06	0.02	0.00	0.01	0.02	0.02	0.02	0.02
Unclassified	0.00	0.02	0.03	0.05	0.02	0.02	0.02	0.02

workers) and decreases their orientation toward family (again, relative to full-time workers). These effects appear to be especially strong during the first year covered by the survey (October 1972 to October 1973).

On average, the corresponding effects for males are smaller, suggesting (perhaps) that socialization in the traditional male role has already given men the values that higher education tends to reinforce, whereas women are to some extent resocialized by exposure to higher education. Certainly the women who entered college in 1972 became more like their male counterparts than did those who entered the full-time labor force.

Among men, the only evidence of track-related changes over time occurs among the unemployed, whose initially depressed orientations toward work and family tend to dissipate relative to changes in the control group (Tables 22 and 25).

The results of our change score analysis (Tables 29 to 31) generally confirm the existence of these track effects for women. They also reveal the importance of marriage and parenthood variables. Specifically, the analysis shows that: (1) marriage is associated with an increase in family orientation for both sexes, especially for women; (2) actual or anticipated marriage and/or parenthood are all associated with *decreases* in work orientation, but only for women; (3) the effects of higher education (entry into a two- or four-year college) on women's work and family orientations remain even after marriage and parenthood have been taken into account—except that enrollment in a two-year college has a significant effect only on family orientation. Neither analysis indicates that vocational training affects either orientation; the effects appear to be limited to college.

These results are pertinent to a hypothesis advanced by Mason (1974) concerning the effects of a "role hiatus" on women. Mason argues that during the critical years of young adulthood, the time a woman spends in *nontraditional* roles (i.e., those not associated with marriage and family) can alter her attitudes—particularly her "taste for paid employment" and her beliefs about appropriate sex roles. Implicit in Mason's analysis is the notion that traditional sex-role socialization sets most women on a course that is consistent with traditional sex roles and also leads them to adopt traditional attitudes and beliefs. But experiencing an interruption in these traditional sex roles—a "role hiatus"—can change these traditional beliefs and subsequent sex-role behavior, with the amount of change being dependent on the duration and degree of the hiatus and the amount of satisfaction it provides. Several types of activities can represent a role hiatus; for example, living away from one's family of origin before marriage, attending college, working for pay, or undertaking vocational training. Presumably, such experiences may change role-related beliefs in several ways: by enhancing a woman's range of experience, by providing her with interests and sources of satisfaction unrelated to traditional roles, or by exposing her to nontraditional role models.

Spitze (1978) used data from the National Longitudinal Study of the Education and Labor Market Experience of Young Women to test Mason's model for three types of role hiatus experiences: paid employment, occupational training,

Table 29

Regression Results for the Change in Work Orientation Between 1972 and 1976

Variable	Females b	Females t	Males b	Males t
Constant	-0.371	-6.3	-0.181	-3.4
Race/Ethnicity				
Black	0.059	3.3	0.030	1.6
Hispanic	0.079	2.8	0.071	2.7
Indian	-0.049	-0.9	0.094	2.0
Oriental	0.031	0.6	0.068	1.5
Other minority	0.061	1.7	0.083	2.6
Region				
Northeast	-0.006	-0.4	0.050	3.3
South	0.010	0.7	0.026	1.9
West	0.002	0.1	-0.005	-0.3
High school measures				
Ability	0.0010	4.1	0.0002	1.1
Percentile rank in class	-0.0007	-2.6	-0.0004	-1.5
Academic program	0.011	0.7	-0.002	-0.1
Vocational-technical program	-0.011	-0.8	-0.024	-1.7
Family background				
Father's education	0.0055	2.0	0.0042	1.6
Mother's education	0.0042	1.2	-0.0007	-0.2
Father's occupation (SEI)	0.0005	1.8	-0.0000	-0.0
Mother's professional status	-0.012	-0.6	0.008	0.4
Mother's homemaker status	-0.004	-0.3	-0.001	-0.1
Postsecondary track (1972)				
4-year student	0.048	2.8	-0.000	-0.0
2-year student	0.023	1.2	-0.026	-1.6
Vocational-technical student	0.021	1.0	0.034	1.4
Military	0.161	1.4	0.030	1.2
Homemaker	0.021	0.8		
Unemployed	-0.027	-1.3	0.057	2.5
Marital status (1976)				
Months since first marriage	0.0008	1.6	0.0001	0.2
Married	-0.133	-7.2	0.013	0.7
Divorced, widowed, or separated	-0.003	-0.1	0.032	0.9
Expecting to be married	-0.063	-3.3	0.015	0.9
Parenthood				
Parent by October 1973	-0.043	-1.6	-0.009	-0.2
Parent Nov. 1973 to Oct. 1974	-0.092	-4.0	0.033	1.1
Parent Nov. 1974 to Oct. 1976	-0.099	-5.4	0.021	1.1
Expecting parenthood, 1976	-0.121	-5.1	-0.007	-0.3
Two or more children, 1976	0.012	0.5	0.003	0.1
R^2	0.060		0.009	
S	0.450		0.420	
F	14.7		2.0	
N	7364		6996	

Table 30

Regression Results for the Change in Family Orientation Between 1972 and 1976

Variable	Females b	Females t	Males b	Males t
Constant	0.058	1.0	0.161	2.7
Race/Ethnicity				
Black	-0.036	-2.0	-0.021	-1.0
Hispanic	-0.011	-0.4	-0.074	-2.6
Indian	0.009	0.2	0.026	0.5
Oriental	-0.001	-0.0	-0.084	-1.7
Other minority	0.004	0.1	-0.040	-1.1
Region				
Northeast	-0.036	-2.3	-0.003	-0.2
South	-0.045	-3.2	-0.015	-1.0
West	-0.004	-0.2	0.019	1.1
High school measures				
Ability	-0.0000	-0.0	0.0001	0.2
Percentile rank in class	-0.0001	-0.3	-0.0003	-1.3
Academic program	-0.007	-0.5	-0.006	-0.4
Vocational-technical program	-0.013	-0.9	-0.001	-0.1
Family background				
Father's education	0.0029	1.1	0.0027	0.9
Mother's education	0.0053	1.5	-0.0061	-1.7
Father's occupation (SEI)	0.0003	.2	-0.0002	-0.6
Mother's professional status	-0.021	-1.1	0.061	2.9
Mother's homemaker status	-0.020	-1.7	0.008	0.7
Postsecondary track (1972)				
4-year student	-0.038	-2.2	-0.024	-1.4
2-year student	-0.066	-3.6	-0.019	-1.0
Vocational-technical student	0.005	0.2	-0.027	-1.1
Military	0.238	2.1	0.005	0.2
Homemaker	-0.009	-0.3		
Unemployed	-0.004	-0.2	0.075	3.0
Marital status (1976)				
Months since first marriage	-0.0011	-2.1	-0.0008	-1.2
Married	0.093	5.0	0.047	2.4
Divorced, widowed, or separated	0.031	1.0	-0.062	-1.6
Expecting to be married	0.054	2.8	0.026	1.3
Parenthood				
Parent by October 1973	-0.002	-0.1	-0.052	-1.3
Parent Nov. 1973 to Oct. 1974	0.028	1.2	-0.004	-0.1
Parent Nov. 1974 to Oct. 1976	0.040	2.2	0.005	0.2
Expecting parenthood, 1976	0.057	2.4	-0.020	-0.7
Two or more children, 1976	-0.023	-1.0	0.028	0.9
R^2	0.018		0.010	
S	0.445		0.451	
F	4.2		2.3	
N	7209		6803	

Table 31

Regression Results for the Change in Community Orientation Between 1972 and 1976

Variable	Females		Males	
	b	t	b	t
Constant	-0.110	-1.8	-0.159	-2.4
Race/Ethnicity				
Black	0.024	1.3	0.056	2.6
Hispanic	0.056	1.9	0.080	2.5
Indian	-0.060	-1.1	0.013	0.2
Oriental	-0.001	-0.0	0.069	1.3
Other minority	0.019	0.5	0.052	1.3
Region				
Northeast	0.030	1.8	0.029	1.6
South	-0.026	-1.8	-0.023	-1.4
West	0.050	2.8	-0.007	-0.4
High school measures				
Ability	-0.0006	-2.1	-0.0003	-1.2
Percentile rank in class	-0.0007	-2.5	-0.0005	-1.9
Academic program	-0.015	-1.0	-0.003	-0.2
Vocational-technical program	-0.000	-0.0	0.008	0.5
Family background				
Father's education	0.0068	2.4	0.0085	2.7
Mother's education	-0.0009	-0.2	0.0020	0.5
Father's occupation (SEI)	0.0003	1.0	-0.0001	-0.3
Mother's professional status	-0.031	-1.5	-0.054	-2.4
Mother's homemaker status	0.006	0.5	-0.018	-1.4
Postsecondary track (1972)				
4-year student	-0.030	-1.7	-0.032	-1.7
2-year student	-0.054	-2.8	-0.010	-0.5
Vocational-technical student	-0.005	-0.2	-0.021	-0.7
Military	0.005	0.0	0.040	1.3
Homemaker	-0.010	-0.4		
Unemployed	0.015	0.7	0.036	1.3
Marital status (1976)				
Months since first marriage	0.0001	0.2	-0.0018	-2.3
Married	-0.054	-2.8	0.043	2.0
Divorced, widowed, or separated	-0.006	-0.2	0.034	0.8
Expecting to be married	0.004	0.2	0.034	1.6
Parenthood				
Parent by October 1973	0.046	1.7	0.029	0.7
Parent Nov. 1973 to Oct. 1974	0.040	1.7	-0.057	-1.6
Parent Nov. 1974 to Oct. 1976	0.030	1.6	0.008	0.4
Expecting parenthood, 1976	0.010	0.4	0.007	0.2
Two or more children, 1976	0.006	0.2	0.050	1.5
R^2	0.019		0.012	
S	0.467		0.505	
F	4.5		2.8	
N	7358		6977	

and college. Controlling for background variables and for attitudes and beliefs held during high school, Spitze found that college attendance had large positive effects on self-reported plans to work at age 35 ("taste for paid employment"). Occupational training also had a positive effect, but only among older subjects. Experience in the paid labor force had a mildly *negative* effect on future work plans—possibly because the jobs typically available to these young women offered little challenge or excitement. None of the role hiatus experiences had any measurable effect on sex-role attitudes—at least those concerned with whether mothers of preschool children should work.

The NLS measure of "orientation toward work" is not, of course, the same as "taste for paid employment." Nevertheless, the results of the present analysis are remarkably consistent with those obtained by Spitze. (In later sections, we shall show that measures that are still more similar to hers show essentially the same pattern.) Both analyses support the role hiatus hypothesis, but only insofar as it predicts change as a result of college attendance. Spitze's analysis provides equivocal support for the hypothesis with respect to occupational training (in that she finds an effect only among older subjects) whereas ours provides none.[15] And neither analysis provides evidence that a woman's experience in the labor force affects her orientation toward work. In fact, Spitze's analysis suggests a mild effect in the opposite direction—an effect that does not appear for our work orientation measure.

We believe that the limited support received by the role hiatus hypothesis argues for a somewhat narrower conception of the process that underlies it. We are observing, it would appear, not so much the effects of a hiatus from the traditional female role as the effects of a college education. Our analysis does not address the critical components of the college experience that serve to alter women's role orientations. We consider it likely, however, that those components involve socialization processes that are somewhat more active than those suggested by the notion of a role hiatus.

SEX-ROLE ATTITUDES

The NLS survey provides only cross-sectional data concerning sex-role attitudes—those measures having been introduced for the first time in 1976. Lacking information about how respondents might have scored in 1972, we are able to say very little about the effects that career and educational choices might have had on these attitudes. Table 32 shows that these attitudes in 1976 varied considerably according to the postsecondary track chosen in 1972. It does not, however, reveal which of these track-related differences had increased and which decreased over the four-year span.

Even cross-sectional data, however, can be instructive. On these, we performed a multiple regression analysis, relating each of the two attitudinal

[15]We did not examine the effects of enrolling in vocational-technical training after 1972; thus, we have no data with which to compare Spitze's findings concerning "older women."

Table 32

Mean Values of the 1976 Sex-Role Attitude Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Mean		Sample Size
	Family Priority	Employment	
FEMALES			
Students			
4-year	1.94	2.65	2504
2-year	2.09	2.56	1073
Voc-tech	2.22	2.44	728
Workers			
Full-time	2.26	2.44	2401
Part-time	2.26	2.45	499
Military	2.33	2.54	18
Homemakers	2.40	2.43	479
Unemployed	2.31	2.43	710
Unclassified	2.24	2.48	658
All subjects	2.16	2.51	9070
MALES			
Students			
4-year	2.25	2.46	2431
2-year	2.35	2.41	1103
Voc-tech	2.49	2.35	401
Workers			
Full-time	2.46	2.34	2660
Part-time	2.47	2.41	334
Military	2.38	2.43	358
Unemployed	2.50	2.39	407
Unclassified	2.42	2.38	620
All subjects	2.38	2.40	8314

factors (traditional family priority and equal employment) to the same set of variables (background, marital status and parenthood, and postsecondary track) employed in our earlier analyses of change scores. To this standard list we added an indicator variable for whether the respondent's *mother* had been a full-time homemaker.

Tables 33 and 34 present our regression results. They reveal strong relationships between sex-role attitudes and such background characteristics as race and ability. Those attitudes are strongly related to marital and parenthood status as well as educational attainment.

Table 33

Regression Results for 1976 Sex-Role Attitudes: Traditional Family Priority

Variable	Females		Males	
	b	t	b	t
Constant	3.13	52.8	3.03	53.5
Race/Ethnicity				
Black	-0.246	-13.7	-0.174	-9.0
Hispanic	-0.186	-6.5	-0.129	-4.6
Indian	-0.104	-1.9	-0.082	-1.7
Oriental	0.142	2.7	-0.147	-3.1
Other minority	-0.020	-0.6	-0.082	-2.4
Region				
Northeast	-0.006	-0.4	-0.024	-1.5
South	0.016	1.1	0.036	2.6
West	-0.026	-1.5	-0.004	-0.2
High school measures				
Ability	-0.0045	-18.0	-0.0027	-11.6
Percentile rank in class	0.0004	1.4	0.0006	2.3
Academic program	-0.032	-2.2	-0.027	-1.9
Vocational-technical program	-0.025	-1.8	0.029	2.0
Family background				
Father's education	-0.0067	-2.4	-0.0049	-1.8
Mother's education	-0.0008	-0.2	-0.0034	-1.0
Father's occupation (SEI)	-0.0004	-1.3	-0.0010	-3.5
Mother's professional status	-0.020	-1.0	0.020	1.0
Mother's homemaker status	0.067	5.8	0.077	6.6
Postsecondary track (1972)				
4-year student	-0.109	-6.4	-0.064	-3.9
2-year student	-0.065	-3.5	-0.029	-1.7
Vocational-technical student	-0.009	-0.5	0.058	2.3
Military	0.130	1.2	-0.063	-2.4
Homemaker	0.095	3.6		
Unemployed	0.035	1.8	0.048	2.0
Marital status (1976)				
Months since first marriage	-0.0017	-3.3	-0.0026	-3.8
Married	0.132	7.1	0.053	2.8
Divorced, widowed, or separated	0.009	0.3	0.029	0.8
Expecting to be married	0.136	7.1	0.035	1.9
Parenthood				
Parent by October 1973	0.015	0.6	0.095	2.5
Parent Nov. 1973 to Oct. 1974	0.118	5.1	0.098	3.2
Parent Nov. 1974 to Oct. 1976	0.136	7.5	0.106	5.1
Expecting parenthood, 1976	0.151	6.4	0.127	4.9
Two or more children, 1976	0.124	5.1	0.052	1.7
R^2	0.179		0.094	
S	0.501		0.481	
F	61.6		27.6	
N	9070		8314	

Table 34

Regression Results for 1976 Sex-Role Attitudes: Equal Employment

Variable	Females b	Females t	Males b	Males t
Constant	1.83	34.1	1.90	38.4
Race/Ethnicity				
Black	0.100	6.2	0.156	9.3
Hispanic	0.152	5.9	0.172	7.1
Indian	0.140	2.9	0.050	1.1
Oriental	0.035	0.7	0.190	4.6
Other minority	0.092	2.9	0.035	1.2
Region				
Northeast	0.031	2.2	-0.000	-0.0
South	-0.017	-1.3	-0.018	-1.5
West	0.051	3.2	0.015	1.0
High school measures				
Ability	0.0030	13.3	0.0017	8.1
Percentile rank in class	-0.0013	-5.6	-0.0008	-3.8
Academic program	0.039	3.0	0.022	1.8
Vocational-technical program	0.009	0.8	0.006	0.4
Family background				
Father's education	0.0041	1.6	0.0026	1.1
Mother's education	0.0070	2.2	0.0111	3.6
Father's occupation (SEI)	0.0002	0.7	0.0002	0.8
Mother's professional status	0.016	0.9	0.009	0.5
Mother's homemaker status	-0.017	-1.6	-0.009	-0.9
Postsecondary track (1972)				
4-year student	0.072	4.6	0.039	2.7
2-year student	0.039	2.3	0.013	0.8
Vocational-technical student	-0.021	-1.2	-0.011	-0.5
Military	0.056	0.6	0.062	2.7
Homemaker	0.019	0.8		
Unemployed	-0.019	-1.0	0.020	0.9
Marital status (1976)				
Months since first marriage	0.0002	0.5	0.0006	1.0
Married	-0.107	-6.4	-0.027	-1.6
Divorced, widowed, or separated	-0.036	-1.3	-0.048	-1.5
Expecting to be married	-0.090	-5.2	-0.045	-2.7
Parenthood				
Parent by October 1973	0.007	0.3	-0.038	-1.1
Parent Nov. 1973 to Oct. 1974	0.016	0.8	-0.026	-1.0
Parent Nov. 1974 to Oct. 1976	-0.021	-1.3	-0.028	-1.5
Expecting parenthood, 1976	-0.040	-1.9	-0.058	-2.6
Two or more children, 1976	-0.019	-0.8	-0.011	-0.4
R^2	0.093		0.044	
S	0.453		0.420	
F	29.1		12.2	
N	9070		8314	

Surprisingly perhaps, the data reveal few sex differences in the pattern of coefficients associated with the various independent variables. The principal sex difference lies in the relative size of the coefficients, women's attitudes being somewhat more predictable than men's. Attitudes toward traditional family priorities are also better accounted for than attitudes toward equal employment opportunity, and the variables predicting the two factors display both similarities and differences.

Academic ability serves as a fairly strong predictor of attitudes on both factors, for both women and men. The able are less apt to endorse traditional family views and more apt to endorse the notion of equal employment opportunity. Earlier, Peplau (1976) had reported a negative correlation between sex-role traditionalism and verbal SAT scores among a sample of college-age women; our results suggest that this relationship applies to both sexes, and that it holds for both sex-role attitude factors identified here.

Our data reveal mostly weak relationships between sex-role attitudes and family background. Mother's status as a full-time homemaker serves as a fairly strong (positive) predictor of the endorsement of traditional sex-role priorities within the family, but is unrelated to attitudes about equal employment opportunity in the market place. Attitudes concerning the latter are positively and significantly (but not strongly) related to mother's education.

The results also point to racial and ethnic differences. Blacks of both sexes are less likely to endorse traditional family priorities and more likely to endorse equal employment opportunity. The same is true of Hispanics, a finding that may surprise those who would expect the attitudes of this group to be dominated by traditional views of appropriate sex-role behavior. Finally, the pattern of coefficients for Orientals differs according to sex. Oriental women are significantly more likely than other women to favor the traditional idea that family should take priority over work for women, but they are not significantly different in their endorsement of sex equality in the labor market. In contrast, Oriental men are *less* supportive of traditional family priorities and *more* supportive of equal employment opportunities than other men.

Marriage and parenthood bear a strong relationship to the sex-role attitudes of both sexes, particularly those of women. Men and women who are married as of 1976 are more apt to endorse traditional views about the family, and married women are also less likely to favor equal employment opportunity. Negative coefficients associated with the length of marriage, however, suggest that support for traditional family views may be stronger among the recently married. Interestingly, women who *expect* to be married within the year display attitudinal patterns that are much closer to those of married than those of (other) unmarried women. It is not clear whether this represents an ideological shift in anticipation of marriage or a selection phenomenon.[16]

Parenthood and anticipated parenthood are much more strongly related to attitudes concerning the family than to attitudes about equal employment. Indeed, parenthood seems to be largely unrelated to the latter. For the tradi-

[16]Men who expect to be married soon also differ from other single men in their views on equal employment opportunity. The difference, however, is considerably weaker than it is among women.

tional family priority measure, the pattern of coefficients associated with timing of parenthood suggests that *recent* parenthood affects those attitudes more strongly than early parenthood does. This suggests that the current endorsement of traditional sex-role attitudes concerned with the family may, more than attitudes about equal employment, reflect the practicalities of experience. The presence of young children may prompt a certain amount of traditionalism in sex-role behavior—traditionalism that is motivated more by instrumental than by ideological concerns.

Whether or not this is so, the data suggest that sex-role attitudes that concern the family and those that concern the labor market are best thought of as occupying distinct dimensions, rather than as separate poles of the same dimension. They are only weakly correlated with each other, and they exhibit different dependencies on other variables—parenthood in particular.

When the background characteristics and marital-parenthood variables discussed above are controlled, significant differences across postsecondary tracks remain. In both sexes, attendance at a four-year college is associated with a lesser endorsement of traditional family roles and a greater endorsement of equal employment opportunity. For women, similar (but weaker) associations exist for attendance at two-year colleges; these associations are not significant for men. Military service, however, is significantly related to men's attitudes, serving as a negative predictor for the traditional family priority measure and as a positive predictor for the equal employment measure.

As one might expect, full-time homemakers are more likely to express traditional attitudes regarding family roles than are other women, even after controlling for background factors and for other variables associated with marriage and parenthood. Homemakers do *not,* however, agree any the less with the egalitarian views captured by the equal employment factor.[17]

Our cross-sectional data do not establish which causal relationships underlie these associations. They are, however, generally consistent with data from other surveys (also, unfortunately, cross-sectional). Mason, Czajka, and Arber (1976), for example, found a relationship between women's educational *attainment* and their endorsement of sexual equality in the labor market—an attitude that seems related to our equal employment factor. In the study cited above, Spitze (1978) found that educational experience did *not* affect women's attitudes concerning whether mothers of preschool children should work. Such attitudes would seem most closely related to the NLS item concerning quality of mothering and employment, which did not correlate well with either of our factors.

Considered together, the three studies—those of Spitze, Mason et al., and our own—suggest that education is more strongly related to some aspects of sex-role attitudes than to others. It is not yet established whether the observed

[17]It might be argued that our failure to find an association between homemaker status in 1972 and attitudes toward equal employment opportunity in 1976 is attributable to the long lag between the two measures. This is not the case. A further analysis (not reported here) indicates that attitudes toward equal employment opportunity are equally unrelated to homemaker status in 1976.

relationships are causal ones, nor is it clear how the dimensions themselves might best be defined. Resolution of the causal question will become possible only when longitudinal data become available; resolution of the dimensional question will require analytic work of a different kind (e.g., factor analytic studies of responses to well-constructed items tapping a much larger domain of role-related attitudes).

EDUCATIONAL EXPECTATIONS

Next to self-esteem, educational expectations and aspirations are probably the most frequently studied of our outcome measures. A considerable sociological literature has attempted to model their structural antecedents and to map their long-term consequences. The study of achievement ambitions has been popular for two reasons: first, because these ambitions are interesting in their own right; second, because they are presumed to play a role in mediating the effects of background on eventual attainments.[18]

For the most part, however, previous researchers have either limited their examination to cross-sectional data (in which case expectations are typically related to synchronous measures of achievement and retrospective measures of family background) or, where longitudinal data are available, investigators have studied the relationship between expectations at time 1 and *attainments* at time 2. Little or no attention has been paid to how expectations themselves change over time—or to the factors that might be associated with those changes.

The analysis that we present below seeks to determine how entry into various postsecondary tracks affects subsequent educational aspirations, taking into account the fact that earlier aspirations have played a role in the initial choices whose effects we wish to examine. Our individual effects methodology is well suited to answering just this kind of question. But in addition to our interest in the effects associated with postsecondary tracks, we are also interested in learning about the role played by other variables (such as marriage and parenthood) in changing the educational plans of high school graduates. An analysis of change scores provides useful insights concerning this latter question.

Our individual effects analysis of educational expectations is based on a larger set of independent or control variables than those used in the previously described analyses. To the basic set used in analyzing self-esteem, locus of control, and work, family, and community orientations, we added the following:

- Number of siblings
- Number of siblings in college, 1972

[18]Many studies have shown that educational expectations have at least modest predictive power (e.g., Alexander and Eckland, 1974; Alexander, Eckland, and Griffin, 1975; Featherman and Carter, 1976; Sewell, Haller, and Portes, 1969; Sewell, Haller, and Ohlendorf, 1970; Wilson and Portes, 1975). In the NLS survey, educational expectations in 1972 have a strong zero-order correlation with educational attainment in 1976 (0.56 for males, 0.61 for females).

- Friends' college plans (indicator variable for respondents who stated in 1972 that *most* of their friends were going to college)
- Religion (indicator variables for Catholic and Jewish)

Family size has been found to depress educational aspirations (Hauser, 1971; Kerckhoff, 1974; Nelson and Simpkins, 1973; Sewell, Haller, and Ohlendorf, 1970), while peers' college plans are positively related (Alexander and Campbell, 1964; Campbell and Alexander, 1965; Sewell and Hauser, 1975). Siblings in college might be expected to have a positive effect by serving as role models. This variable might also serve as a proxy for parental willingness to support higher education.[19] Finally, although previous studies have failed to establish any consistent relationship between religion and educational aspirations, preliminary modeling disclosed modest but significant relationships between these variables and educational expectations in 1972.

Tables 35 to 37 present the results of our individual effects analysis for educational expectations. Table 35 reveals differences between tracks throughout the four years. The fact that the differences exist is not surprising, given that the tracks stratify respondents partly on the basis of their actual educational choices.

The considerably smaller differences in the adjusted means displayed in Table 36 attest to the importance of background variables in explaining some of the differences in the track means. Among those entering the full-time labor force, background factors accounted for 23 and 28 percent of the variance in senior-year expectations (among females and males, respectively)—a much larger percentage than is explained by our models for other dependent variables. (See Table G.6 in App. G.)

Still, the adjusted means reveal sizeable track differences even after background variables have been controlled. Table 37 displays these intergroup differences relative to the control group of full-time workers in 1972. It shows that the educational expectations of NLS respondents diverged sharply during the first 16 months after high school, depending on postsecondary track. Workers retained their initial expectations (see Table 35), whereas students and military personnel sharply increased theirs. Inasmuch as those bound for college or military service had significantly higher expectations to begin with, between-group differences widened considerably over the course of the year. After 1973, however, the data reveal no further divergence. If anything, respondents in the student tracks tend to exhibit a slight decline in their expectations relative to workers (though not, as Table 35 reveals, in absolute terms).

There are several possible reasons for the relative jump in expectations among students and men in military service compared with workers. One explanation that we do not consider very likely is that the jump reflects a measurement artifact. Respondents' expectations concerning their eventual educational attainment were measured somewhat differently in the base year questionnaire and the follow-up questionnaires. The difference mostly had to

[19]This latter relationship might, however, be attenuated by the drain that siblings' college attendance imposes on parents' financial resources.

Table 35

Mean Values of Expected Years of Educational Attainment by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	16.28	16.39	16.59	16.96	1970	2850	2726	2705
2-Year	14.87	15.07	15.22	15.52	737	1264	1139	1142
Voc-Tech	13.45	13.66	13.79	14.06	497	815	771	742
Workers								
Full-time	13.09	12.88	13.00	13.31	1524	2694	2523	2411
Part-time	13.18	12.93	13.06	13.45	300	579	544	516
Military	14.86	14.58	13.79	14.81	7	19	19	21
Homemakers	12.87	12.75	12.84	13.10	275	537	516	493
Unemployed	13.26	13.07	13.14	13.49	448	854	781	754
Unclassified	14.05	13.97	14.18	14.53	561	521	679	677
All Subjects	14.41	14.28	14.42	14.78	6319	10133	9698	9461
MALES								
Students								
4-Year	16.55	16.81	16.80	17.04	1999	2912	2731	2777
2-Year	15.33	15.47	15.57	15.72	777	1342	1227	1242
Voc-Tech	13.69	14.09	14.19	14.32	254	478	425	420
Workers								
Full-time	13.39	13.36	13.45	13.64	1608	3111	2834	2809
Part-time	13.53	13.49	13.64	13.79	206	420	374	354
Military	14.14	14.69	14.67	14.99	232	422	381	397
Unemployed	13.82	13.64	13.75	14.06	264	519	463	454
Unclassified	14.56	14.67	14.72	15.00	622	415	664	684
All Subjects	14.89	14.87	14.94	15.17	5962	9619	9099	9137

Table 36

Adjusted Mean Values of Expected Years of Educational Attainment by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	14.99	15.53	15.63	15.81	0.08	0.06	0.06	0.07
2-Year	14.05	14.53	14.64	14.85	0.07	0.05	0.05	0.06
Voc-Tech	13.18	13.48	13.59	13.82	0.06	0.05	0.05	0.06
Workers								
Full-time	13.09	12.88	13.00	13.31	0.04	0.02	0.03	0.03
Part-time	13.13	12.86	12.99	13.37	0.08	0.05	0.06	0.07
Military	14.54	14.27	13.51	14.44	0.52	0.29	0.31	0.34
Homemakers	12.86	12.77	12.88	13.17	0.09	0.06	0.06	0.07
Unemployed	13.16	12.92	13.03	13.36	0.07	0.05	0.05	0.06
Unclassified	13.65	13.65	13.86	14.15	0.06	0.06	0.06	0.06
MALES								
Students								
4-Year	14.82	15.54	15.43	15.75	0.09	0.07	0.07	0.08
2-Year	14.30	14.74	14.76	14.96	0.07	0.06	0.06	0.06
Voc-Tech	13.35	13.83	13.91	14.06	0.09	0.07	0.08	0.08
Workers								
Full-time	13.39	13.36	13.43	13.64	0.04	0.03	0.03	0.03
Part-time	13.43	13.41	13.54	13.69	0.10	0.08	0.08	0.09
Military	13.83	14.46	14.41	14.73	0.10	0.08	0.08	0.09
Unemployed	13.69	13.53	13.63	13.93	0.09	0.07	0.08	0.08
Unclassified	13.99	14.24	14.25	14.58	0.06	0.08	0.07	0.07

Table 37

Intergroup Differences in Adjusted Means for Expected Years of Educational Attainment

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	1.90	2.65	2.63	2.50	0.09	0.06	0.07	0.08
2-Year	0.97	1.65	1.64	1.54	0.08	0.05	0.06	0.07
Voc-Tech	0.09	0.60	0.59	0.51	0.07	0.05	0.06	0.07
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	0.04	-0.01	-0.01	0.06	0.09	0.06	0.07	0.08
Military	1.45	1.39	0.51	1.13	0.52	0.29	0.32	0.34
Homemakers	-0.23	-0.11	-0.12	-0.14	0.09	0.06	0.07	0.08
Unemployed	0.07	0.04	0.03	0.05	0.08	0.05	0.06	0.07
Unclassified	0.57	0.77	0.86	0.84	0.07	0.06	0.06	0.07
MALES								
Students								
4-Year	1.42	2.17	2.00	2.11	0.09	0.07	0.08	0.08
2-Year	0.90	1.37	1.34	1.33	0.08	0.06	0.07	0.07
Voc-Tech	-0.05	0.47	0.48	0.42	0.10	0.08	0.08	0.09
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	0.03	0.04	0.11	0.05	0.11	0.08	0.09	0.10
Military	0.44	1.09	0.99	1.10	0.10	0.08	0.09	0.09
Unemployed	0.30	0.16	0.20	0.30	0.10	0.08	0.08	0.09
Unclassified	0.60	0.87	0.83	0.94	0.07	0.09	0.07	0.08

do with whether they were asked how far they *planned* to get (base year) or how far they thought they would actually get "as things stand now . . . " (follow-up). We do not think that this difference can easily account for the track differences displayed in Table 37. Although it is not difficult to imagine that the two forms of the question might elicit slightly different responses, it is considerably more difficult to offer a plausible reason as to why they should *differentially* affect responses of those in different postsecondary tracks, and to the extent shown in Table 37.

If the jumps are not due to measurement artifacts, then we must conclude that they reflect differences associated with the tracks themselves. One appealingly simple explanation is that being exposed to *some* higher education causes young people to develop a "taste" for more. Several variants of this explanation are possible. Exposure to a little postsecondary education might, for example, increase the *desire* for more, or the perceived *utility* of more. Moreover, this explanation can just as plausibly apply to the effects of military training programs as to other types of educational experiences.

A second and slightly different explanation is that there is a tentative quality about young people's initial decisions to enter postsecondary educational or vocational training programs. Once they have actually done so, however, their commitment tends to solidify rather quickly and to be maintained thereafter. A related explanation is that college-bound seniors, uncertain of their ability to handle college-level work, may systematically underestimate their ability to complete college. If so, the increased expectations associated with college attendance may simply reflect increased realism born of happy experience. The analysis that we have performed does not enable us to determine which of these explanations comes closest to being correct.

Table 38 summarizes the results of our regression analysis of change scores, in which the track indicator variables have been entered as independent variables along with others that reflect background factors and marriage and parenthood status. Some of the track effects revealed by the individual effects model are confirmed in Table 38. The positive effects of military experience are corroborated for men, as are the effects of attending vocational and technical schools for both sexes. However, the coefficients of the indicator variables associated with college attendance (two-year and four-year) do *not* confirm the track effects determined from the individual effects model. The coefficients for the college tracks in Table 34 are significant only for women, and they are somewhat smaller than the estimated effects from the individual effects analysis.

There are several possible explanations for this lack of agreement. First, the positive effects associated with college attendance may be masked in the change score analysis by the dependence of educational aspirations on other factors (especially those associated with family formation). For example, if attending college tends to lead young people to defer marriage and parenthood, and if marriage and parenthood tend to depress educational aspirations, then the college track coefficients in Table 38 may tend to understate the effects of college attendance by a wide margin. Second, the change score analysis, unlike

Table 38

Regression Results for the Change in Expected Years of Educational Attainment Between 1972 and 1976

Variable	Females		Males	
	b	t	b	t
Constant	-0.677	-2.5	-0.255	-0.9
Race/Ethnicity				
Black	0.222	2.6	0.504	4.9
Hispanic	0.110	0.8	0.185	1.2
Indian	-0.158	-0.6	0.520	2.0
Oriental	-0.250	-1.0	-0.068	-0.3
Other minority	0.305	1.8	0.269	1.5
Region				
Northeast	0.095	1.3	0.149	1.8
South	0.086	1.3	-0.095	-1.3
West	-0.047	-0.6	-0.230	-2.5
High school measures				
Ability	0.0044	3.7	0.0015	1.2
Percentile rank in class	-0.0006	-0.5	0.0037	2.7
Academic program	-0.077	-1.1	-0.175	-2.3
Vocational-technical program	0.132	2.0	0.031	0.4
Family background				
Father's education	-0.0047	-0.4	0.0242	1.7
Mother's education	0.0513	3.0	0.0098	0.5
Father's occupation (SEI)	-0.0012	-0.9	0.0009	0.6
Mother's professional status	0.005	0.1	-0.097	-1.0
Postsecondary track (1972)				
4-year student	0.207	2.6	-0.117	-1.3
2-year student	0.305	3.5	0.146	1.6
Vocational-technical student	0.221	2.3	0.354	2.7
Military	-0.351	-0.7	0.614	4.4
Homemaker	0.157	1.3		
Unemployed	-0.014	-0.1	-0.122	-0.9
Marital status (1976)				
Months since first marriage	-0.0026	-1.1	-0.0005	-0.1
Married	-0.587	-6.7	-0.256	-2.5
Divorced, widowed, or separated	-0.153	-1.1	-0.016	-0.1
Expecting to be married	-0.476	-5.2	-0.123	-1.2
Parenthood				
Parent by October 1973	-0.012	-0.1	-0.175	-0.9
Parent Nov. 1973 to Oct. 1974	-0.151	-1.4	-0.269	-1.7
Parent Nov. 1974 to Oct. 1976	-0.274	-3.2	-0.376	-3.4
Expecting parenthood, 1976	-0.221	-2.0	-0.539	-3.9
Two or more children, 1976	0.015	0.1	0.256	1.6
R^2	0.061		0.033	
S	1.326		2.000	
F	11.2		5.7	
N	5982		5025	

the individual effects model, does not allow for possible interactions between the postsecondary tracks and background characteristics. The dependence of changes in educational aspirations on ability, scholastic performance, and family background factors may be quite different across tracks, in which case the regression coefficients in Table 38 may not reflect the true effects. Finally, the change score analysis is based on a much smaller sample, limited as it is to those NLS participants for whom expectations data were available in both years.[20] In view of these considerations, and because the individual effects analysis reveals a clear-cut pattern of effects associated with first-year college attendance, we conclude that the effect of college attendance on educational aspirations is a real effect.

The change score analysis reveals significant relationships between educational aspirations and marriage and parenthood. Marriage is negatively associated with gains in the aspirations of both sexes, but the female regression coefficient is more than twice the male coefficient. Also, women—but not men—who *expect* to be married show a reduction in expectations.

In contrast, the association between *parenthood* and changes in educational expectations is stronger among men. Perhaps men, in their more frequent role as principal breadwinner, are more likely to be restricted in their opportunities for further education by the prospect of additional dependents. The pattern of dependence of educational expectations on parenthood in both sexes suggests that *recent* parenthood affects educational expectations more than does earlier parenthood.

Besides sex differences in the findings regarding marriage and parenthood, Table 38 reveals other sex-specific findings that are of interest. For women, postsecondary gains in educational expectations are positively related to both ability and mother's education. That these variables predict the *changes* in women's educational expectations indicates that the full effects of these variables are not apparent in the senior year. Other studies (Alexander and Eckland, 1974; Marini and Greenberger, 1978; Sewell and Shah, 1967, 1968) have typically found that academic ability and high school achievement are more strongly related to men's educational aspirations than to women's. But these findings are generally based on an analysis of expectations as measured in high school. Our results suggest that ability and certain family background factors may have "delayed" effects that are not observable in high school data and are sex-specific. For example, our regression results for the individual years (Table G.6) indicate that although the coefficient associated with women's academic ability is only about half as great as the corresponding coefficient for men in 1972; by 1976 the coefficients for the two sexes are very nearly the same (0.0098 for women, 0.0110 for men).

Finally, Table 38 indicates that being black is significantly—and positively—associated with gains in educational expectations, net of other background factors. During the four years following graduation, blacks increase their edu-

[20]The base year survey obtained a very low response rate for the item eliciting educational expectations, for reasons that are not clear to us.

cational expectations more than do comparable whites, even though they have higher expectations to begin with, after differences in other background characteristics have been taken into account.[21]

The finding that blacks aspire to higher levels of education than whites is now standard (Debord, Griffin, and Clark, 1977; Hout and Morgan, 1975; Rosenberg and Simmons, 1972), but the NLS-based finding that these racial differences tend to *increase* after high school is both novel and surprising. Some have argued that blacks' greater ambitions are (on the average) unrealistically high, given handicaps in social background, secondary school quality, etc. But such an argument seems to imply that blacks would lower their expectations at some point, in response to harsh realities. The NLS data, however, provide no evidence that they do. An analysis relating blacks' increasing expectations to their actual attainments—and exploring the possible ramifications of that relationship—is beyond the scope of this study, but might prove worthwhile.

CAREER ASPIRATIONS

Tables 39 to 41 summarize the results of our individual effects analysis of career aspirations. As Table 39 shows, the NLS respondents in different post-secondary tracks held very different career goals, and these differences persisted throughout the four years covered by the survey. Table 39 also indicates that young people tend to reduce their aspirations over time. Since these aspirations were, on average, unrealistically high to begin with, this trend represents a shift toward greater realism, albeit not a very substantial one.[22]

The adjusted means in Table 40 show that track differences in aspirations shrink when background factors are taken into account—but substantial differences still remain. Table 41 summarizes these remaining intergroup differences. It shows that the major differences are those that exist at the time young people enter a track; compared with these initial differences, changes in the relative aspirations of the group are quite small. Unfortunately, the factors that account for these initial differences are not well predicted by our regression model, which was able to explain only 13 percent (for females) to 14 percent (for males) of the variance in 1972 career aspirations.

Nevertheless, Table 41 suggests some slight track effects. Males who were unemployed in 1972 seem, by 1976, to have reduced their aspirations more than did 1972 workers with similar characteristics. And in the three tracks that

[21]Our regression models indicate that, with other factors controlled, black females expected to obtain about half a year more education than white women. By 1976 this difference had increased to 1.2 years. The corresponding figures for black men are 0.70 years and 0.95 years, respectively (see App. G).

[22]More than 40 percent of the sample and (from weighted estimates) more than 50 percent of the population it represents aspired to careers as professionals (i.e., one of the occupations included in the categories Professional I, Professional II, and School Teacher in Table 6). In contrast, only about 10 percent of the civilian labor force in 1970 were engaged in occupations classified as "professional, technical, and kindred workers." Thus, these aspirations can be regarded as unrealistically high—even after allowing for the fact that all the aspirants are high school graduates.

Table 39

Mean Values of the Career Aspiration Measures by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	63.6	60.2	59.0	57.4	1951	2771	2731	2694
2-Year	55.5	52.2	51.1	49.8	795	1215	1129	1150
Voc-Tech	45.5	42.8	43.1	43.8	533	795	776	777
Workers								
Full-time	42.4	39.9	39.7	40.2	1634	2603	2467	2515
Part-time	42.5	40.3	40.9	41.3	331	556	520	524
Military	45.8	46.6	40.3	44.0	10	20	19	21
Homemakers	40.4	38.8	39.0	39.1	287	511	507	508
Unemployed	44.3	40.7	40.7	40.2	462	818	771	765
Unclassified	49.3	46.4	45.9	45.5	584	502	682	703
All Subjects	51.2	47.8	47.4	46.8	6587	9791	9602	9657
MALES								
Students								
4-Year	59.8	61.5	60.0	57.2	1974	2814	2751	2742
2-Year	50.1	51.9	50.6	47.8	781	1315	1228	1234
Voc-Tech	36.0	39.6	39.5	37.5	276	467	439	447
Workers								
Full-time	35.5	34.2	34.6	34.3	1648	3050	2816	2917
Part-time	38.6	37.4	37.4	36.3	200	416	369	371
Military	43.8	44.5	42.6	42.2	230	414	380	405
Unemployed	41.5	36.8	37.1	36.7	262	492	445	464
Unclassified	46.0	44.5	44.5	43.9	610	393	664	689
All Subjects	47.2	46.3	46.0	44.3	5981	9361	9092	9269

Table 40

Adjusted Mean Values of the Career Aspiration Measures by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	54.3	54.3	53.0	50.9	0.81	0.52	0.54	0.56
2-Year	49.9	48.8	47.8	46.5	0.67	0.43	0.45	0.47
Voc-Tech	43.5	41.7	41.8	42.5	0.67	0.44	0.45	0.47
Workers								
Full-time	42.4	39.9	39.7	40.2	0.36	0.23	0.24	0.25
Part-time	41.9	39.7	40.3	40.8	0.81	0.51	0.53	0.55
Military	43.9	45.3	38.9	42.3	4.63	2.65	2.75	2.72
Homemakers	40.1	39.0	39.4	39.6	0.88	0.54	0.55	0.57
Unemployed	43.4	40.2	40.2	39.9	0.72	0.44	0.46	0.48
Unclassified	46.5	44.6	44.1	44.0	0.66	0.56	0.49	0.50
MALES								
Students								
4-Year	47.3	49.4	47.1	45.9	0.97	0.70	0.73	0.70
2-Year	43.0	45.1	43.4	42.0	0.80	0.58	0.61	0.59
Voc-Tech	33.6	37.3	36.9	35.1	1.08	0.79	0.82	0.80
Workers								
Full-time	35.5	34.2	34.6	34.3	0.43	0.30	0.32	0.30
Part-time	38.1	36.9	36.7	35.8	1.24	0.82	0.88	0.86
Military	41.8	42.5	40.2	40.3	1.17	0.83	0.88	0.83
Unemployed	40.5	36.1	36.1	35.8	1.09	0.76	0.81	0.78
Unclassified	42.2	40.8	40.4	40.7	0.76	0.87	0.69	0.66

Table 41

Intergroup Differences in Adjusted Means for the Career Aspiration Measures

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	11.9	14.4	13.2	10.7	0.9	0.6	0.6	0.6
2-Year	7.5	8.9	8.1	6.3	0.8	0.5	0.5	0.5
Voc-Tech	1.2	1.9	2.1	2.3	0.8	0.5	0.5	0.5
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	-0.5	-0.2	0.6	0.6	0.9	0.6	0.6	0.6
Military	1.6	5.4	-0.8	2.2	4.6	2.7	2.8	2.7
Homemakers	-2.3	-0.9	-0.3	-0.5	1.0	0.6	0.6	0.6
Unemployed	1.1	0.3	0.5	-0.2	0.8	0.5	0.5	0.5
Unclassified	4.1	4.7	4.3	3.8	0.8	0.6	0.5	0.6
MALES								
Students								
4-Year	11.8	15.2	12.5	11.6	1.1	0.8	0.8	0.8
2-Year	7.5	10.9	8.8	7.7	0.9	0.7	0.7	0.7
Voc-Tech	-2.0	3.1	2.3	0.8	1.2	0.8	0.9	0.9
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	2.5	2.7	2.0	1.5	1.3	0.9	0.9	0.9
Military	6.2	8.4	5.6	6.0	1.2	0.9	0.9	0.9
Unemployed	4.9	2.0	1.5	1.5	1.2	0.8	0.9	0.8
Unclassified	6.6	6.6	5.8	6.4	0.9	0.9	0.8	0.7

pertain to students, there is a consistent tendency for career aspirations to increase somewhat (relative to workers) during the first year, but to decrease (again, relative to workers) thereafter. Interpretation of this pattern, however, is complicated by the questions raised earlier concerning the comparability of the 1972 measures with those used in the follow-up questionnaires. Since most students aspire to a profession, and since the professional categories are treated differently at base year compared with later years, the intergroup differences may reflect the effects of definitional shifts instead of relative shifts in the aspirations themselves.

Our indicator variable for professional aspirations was designed to circumvent this difficulty. Unlike the career aspiration index, it employs the 1972 career categories in all four waves. Thus, by using this measure we can make intergroup comparisons that are relatively free of the definitional ambiguities associated with the 1972 measures on the overall index.[23] This is particularly useful in examining the development of aspirations among students, for whom professional goals dominate.

Tables 42 to 44 provide summary statistics for our individual effects analysis of professional aspirations. Tables 42 and 43 show that track differences are extremely large, both before and after controlling for background variables. In particular, professional aspirations seem to be the norm among students in four-year colleges.

Table 44 summarizes the intergroup differences in the percentages of young people who hold professional aspirations, after adjusting for background differences. It shows that the pattern observed in the corresponding table for the career aspiration index (Table 41) holds for the professional aspiration measure as well; that is, college students display a small initial increase in professional aspirations, whereas the control group of full-time workers shows a sharp initial drop. After 1973, however, college students' professional aspirations decline more rapidly than those of the control group.

Military service affects professional aspirations at least as much as formal education does. Compared with workers, a greater percentage of those who entered military service in 1972 subsequently formed professional career goals. As is the case for students, much of this effect seems to occur during the first year out of high school, with some decline thereafter. By 1976, however, those who initially entered military service were still significantly more likely than workers to aspire to professional careers, and the difference between the two groups remained considerably greater than at base year. For students, the relative decline in these aspirations between 1973 and 1976 cancels out all of the first-year jump. These data suggest that military training programs (or possibly some other aspect of military service) may have lasting effects on a sizeable proportion of those who enroll in them, influencing many who might not otherwise have done so to set their sights on a professional goal. The

[23]The professional aspirations indicator variable does not, of course, remove any effects associated with the other difference between 1972 and follow-up measures: namely, the shift from an age-free to an age-specific reference point in eliciting career aspirations.

Table 42

Percentages of Respondents with Professional Aspirations by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	81.6	75.5	71.7	65.6	1951	2771	2731	2694
2-Year	58.5	53.1	50.0	43.7	795	1215	1129	1150
Voc-Tech	32.8	26.5	27.7	28.3	533	795	776	777
Workers								
Full-time	22.5	16.1	16.1	16.4	1634	2603	2467	2515
Part-time	23.3	18.0	17.9	19.7	331	556	520	524
Military	10.0	30.0	15.8	28.6	10	20	19	21
Homemakers	16.4	12.7	14.6	15.0	287	511	507	508
Unemployed	27.9	19.2	19.2	18.8	462	818	771	765
Unclassified	42.0	36.5	35.3	34.4	584	502	682	703
All Subjects	47.0	39.6	38.5	36.0	6587	9791	9602	9657
MALES								
Students								
4-Year	70.5	69.3	65.3	56.7	1974	2814	2751	2742
2-Year	45.5	46.9	44.6	35.7	781	1315	1228	1234
Voc-Tech	14.1	20.3	21.0	17.2	276	467	439	447
Workers								
Full-time	17.3	14.8	15.7	13.3	1648	3050	2816	2917
Part-time	22.5	20.0	19.2	18.9	200	416	369	371
Military	19.6	29.5	25.5	24.4	230	414	380	405
Unemployed	24.4	21.3	23.8	18.3	262	492	445	464
Unclassified	35.9	32.1	31.2	29.6	610	393	664	689
All Subjects	40.9	37.9	36.9	31.5	5981	9361	9092	9269

Table 43

Adjusted Percentages of Respondents with Professional Aspirations by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	51.6	56.0	50.8	47.1	2.15	1.64	1.68	1.72
2-Year	43.7	44.4	41.3	37.1	2.08	1.65	1.70	1.69
Voc-Tech	31.2	26.1	27.0	27.0	2.11	1.62	1.66	1.67
Workers								
Full-time	22.5	16.1	16.1	16.4	1.03	0.72	0.74	0.74
Part-time	25.6	19.1	19.2	20.7	2.34	1.64	1.70	1.75
Military	8.6	28.0	14.0	26.1	10.04	10.53	8.62	10.12
Homemakers	19.2	15.5	17.9	17.9	2.25	1.52	1.61	1.63
Unemployed	29.5	19.7	20.1	19.5	2.18	1.45	1.49	1.49
Unclassified	37.5	33.3	32.3	32.4	2.17	2.21	1.91	1.87
MALES								
Students								
4-Year	38.2	40.2	35.2	31.0	2.08	1.54	1.62	1.56
2-Year	32.5	35.3	33.0	27.8	2.06	1.56	1.62	1.54
Voc-Tech	13.7	19.8	19.8	16.8	2.16	1.90	1.98	1.82
Workers								
Full-time	17.3	14.8	15.7	13.3	0.93	0.64	0.69	0.63
Part-time	26.0	22.4	21.5	21.5	2.98	1.97	2.07	2.05
Military	20.1	29.6	25.2	24.9	2.66	2.26	2.26	2.16
Unemployed	27.1	23.8	25.7	20.3	2.69	1.87	2.04	1.82
Unclassified	31.9	28.5	27.4	27.7	2.04	2.40	1.85	1.79

Table 44

Intergroup Differences in Adjusted Percentages of Respondents with Professional Aspirations

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
FEMALES								
Students								
4-Year	29.1	39.9	34.7	30.7	2.4	1.8	1.8	1.9
2-Year	21.2	28.2	25.2	20.7	2.3	1.8	1.9	1.8
Voc-Tech	8.7	9.9	10.9	10.7	2.3	1.8	1.8	1.8
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	3.0	2.9	3.1	4.4	2.6	1.8	1.8	1.9
Military	-13.9	11.9	-2.1	9.7	10.1	10.6	8.7	10.1
Homemakers	-3.3	0.0	1.9	1.5	2.5	1.7	1.8	1.8
Unemployed	6.9	3.6	4.1	3.1	2.4	1.6	1.7	1.7
Unclassified	15.0	17.2	16.2	16.0	2.4	2.3	2.0	2.0
MALES								
Students								
4-Year	20.9	25.4	19.5	17.7	2.3	1.7	1.8	1.7
2-Year	15.2	20.5	17.3	14.5	2.3	1.7	1.8	1.7
Voc-Tech	-3.6	5.0	4.2	3.5	2.4	2.0	2.1	1.9
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	8.7	7.6	5.8	8.2	3.1	2.1	2.2	2.1
Military	2.8	14.8	9.5	11.6	2.8	2.4	2.4	2.2
Unemployed	9.8	9.1	10.0	7.0	2.8	2.0	2.2	1.9
Unclassified	14.6	13.7	11.7	14.4	2.2	2.5	2.0	1.9

absence of a similar finding in the overall aspiration index (see Table 39) suggests that military service does not raise aspirations among those aspiring to nonprofessional occupations.

Table 45 presents the results of our change score analysis for the overall career aspiration index. Negative coefficients are associated with being a student in a four-year college (for both sexes) and a two-year college (for females), suggesting that the decline in students' aspirations between 1973 and 1976 outweighs first-year gains among those for whom change scores can be calculated.[24] The only other significant coefficient associated with track is the negative one associated with unemployment, confirming the finding from the individual effects analysis that long-term aspirations are adversely affected by being unemployed shortly after high school. In the change score analysis, however, this effect appears for women as well as men.

Table 45 also reveals small but significant relationships between family formation and career aspirations. For both sexes, being married is negatively related to aspirations, much more so for women than for men. For women, a similar (but weaker) reduction in career aspirations is associated with expecting to be married. The relationship between marriage and career aspirations among women, however, tends to moderate over time, in that length of marriage is *positively* associated with career aspirations.

The coefficients associated with parenthood are predominately negative for both sexes, but the only one that is significant is the coefficient associated with *recent* motherhood. Thus, the previously observed pattern of effects for educational expectations (where parenthood appears to affect men more than women) does not seem to apply to career aspirations.

Table 45 also reveals a number of important "delayed" effects associated with high school and social background variables. Among women, there is a strong positive coefficient for vocational-technical programs in high school. This variable was negatively associated with career aspirations in 1972 (see App. G) but not in 1976. Similarly, a positive relationship between 1972 career aspirations and high school academic program diminishes considerably by 1976, resulting in a negative change score coefficient.

These changes associated with high school program may simply represent instances of regression to the mean. Or, they may suggest that both types of high school programs exert a disproportionately strong influence on students' initial aspirations. The change score analysis suggests that vocational-technical students—especially girls—exhibit lower initial career aspirations than one would predict on the basis of their scholastic ability and social background, while students in high school academic programs have more extravagant aspirations than can be accounted for by their other characteristics. The fact that in both cases these differences tend to diminish over time suggests (though it

[24]Also, the change score analysis, unlike the individual effects analysis, controls for marriage and parenthood effects. Because full-time workers (the control group) are more likely to be spouses or parents or both, and because both marriage and parenthood tend to depress career aspirations, the change score analysis will tend to "predict" somewhat larger between-group differences than does the individual effects model.

Table 45

Regression Results for the Change in Career Aspirations Between 1972 and 1976

Variable	Females b	Females t	Males b	Males t
Constant	-4.32	-1.6	-2.67	-0.8
Race/Ethnicity				
Black	2.128	2.6	1.819	1.7
Hispanic	3.203	2.5	-0.194	-0.1
Indian	2.334	1.0	0.871	0.3
Oriental	2.024	0.8	-2.176	-0.8
Other minority	1.950	1.2	2.314	1.2
Region				
Northeast	-0.475	-0.7	-0.126	-0.1
South	-0.410	-0.6	-1.014	-1.3
West	-1.801	-2.3	-2.535	-2.6
High school measures				
Ability	0.0017	0.1	-0.0064	-0.5
Percentile rank in class	0.0084	0.7	0.0350	2.4
Academic program	-2.104	-3.2	-1.993	-2.5
Vocational-technical program	4.540	7.2	1.376	1.6
Family background				
Father's education	-0.088	-0.7	0.397	2.5
Mother's education	0.228	1.4	0.051	0.3
Father's occupation (SEI)	0.0301	2.3	0.0021	0.1
Mother's professional status	-0.624	-0.7	-1.374	-1.2
Mother's homemaker status	-0.204	-0.4	-1.229	-1.8
Postsecondary track (1972)				
4-year student	-2.657	-3.4	-3.300	-3.5
2-year student	-2.156	-2.6	-1.575	-1.6
Vocational-technical student	1.145	1.2	1.206	0.9
Military	7.326	1.4	-0.445	-0.3
Homemaker	0.623	0.5		
Unemployed	-1.845	-2.0	-3.126	-2.3
Marital status (1976)				
Months since first marriage	0.0554	2.4	0.0227	0.6
Married	-4.948	-5.9	-2.293	-2.1
Divorced, widowed, or separated	-2.560	-1.9	-2.184	-1.0
Expecting to be married	-2.380	-2.7	-1.814	-1.7
Parenthood				
Parent by October 1973	-1.724	-1.4	-3.525	-1.6
Parent Nov. 1973 to Oct. 1974	-1.274	-1.2	-2.470	-1.4
Parent Nov. 1974 to Oct. 1976	-2.884	-3.5	-0.793	-0.7
Expecting parenthood, 1976	-1.807	-1.7	-1.138	-0.8
Two or more children, 1976	1.623	1.5	1.433	0.8
R^2	0.043		0.015	
S	18.092		21.514	
F	7.9		2.5	
N	5713		5119	

does not prove) that the differences were overdetermined to begin with. Such overdetermination might occur, for example, if the tracking of high school students tends to result in differential labeling (by themselves, by their teachers, or by their counselors) concerning the range of career options that are open to them.[25]

Family background variables that appear to have a delayed effect on career aspirations include father's occupation (for women) and father's education (for men). In addition, black and Hispanic women maintain their initial career aspirations better than white (Anglo) women.

Homemaker Aspirations

Women's career choices, unlike men's, are made in the context of competing alternatives provided by more traditional roles. Women resolve conflict concerning these alternatives in different ways. Some place primary importance on pursuing a career, with or without a separate commitment to familial roles; others seek to fulfill the more traditional roles of wife and mother. During the past forty years, the pattern of women's participation in these roles has undergone profound change. Before World War II, it was uncommon for married women to work. By 1978, however, 49 percent of all women were in the labor force, including 48 percent of all wives and 42 percent of all married women with preschool children (U.S. Bureau of the Census, 1979). Changes in women's labor force participation have had far-reaching social repercussions, and policymakers are properly concerned with gaining a better understanding of how women make choices between homemaking and other careers. The NLS provides important information on the determinants of these choices among a recent cohort of young women now in their mid-twenties. The long-range plans of these women are of special policy interest.

To provide information on this issue, we have applied our individual effects analysis to a variable indicating whether a woman expects to be a homemaker at age 30. Analysis of these "homemaker aspirations" adds an important dimension to our analysis of women's career aspirations.

Tables 46 and 48 present the results of this analysis. Table 46, which shows the percentage who plan to be homemakers by postsecondary track, shows consistent differences both across tracks and over time. The table suggests that many fewer women indicate plans to be homemakers in 1972 than in later years. While the substantial discrepancy between 1972 and later years *could* reflect a substantial change in many women's plans during the first year, it is

[25]Alexander, Cook, and McDill (1978) found longitudinal evidence of tracking effects on educational goals and achievements in the twelfth grade, controlling for academic and social background. Studies by Cicourel and Kitsuse (1963), Heyns (1974), and Rosenbaum (1976) suggest that students in academic tracks receive more attention and encouragement from guidance counselors than do those in nonacademic tracks. Moreover, students' *own* perceptions of what track they are in influence their college plans and college attendance independently of actual track (Rosenbaum, 1980), suggesting that at least some self-labeling may be involved.

Table 46

Percentages of Women Who Plan To Be Homemakers at Age 30 by Postsecondary Track

Postsecondary Track as of October 1972	Sample Means				Sample Sizes			
	1972	1973	1974	1976	1972	1973	1974	1976
Students								
4-Year	1.9	8.4	9.4	10.8	1951	2800	2767	2720
2-Year	2.1	14.0	16.5	17.7	795	1226	1152	1169
Voc-Tech	2.1	19.1	21.6	22.0	533	807	788	790
Workers								
Full-time	6.7	36.4	37.0	32.3	1634	2685	2543	2574
Part-time	10.0	35.7	36.7	33.9	331	571	542	537
Military	0.0	40.0	36.8	14.3	10	20	19	21
Homemakers	27.9	47.0	45.3	40.3	287	528	523	521
Unemployed	9.7	36.5	35.8	33.1	462	855	801	789
Unclassified	8.4	27.3	25.6	23.3	584	513	702	720
All Subjects	5.8	24.5	25.1	23.7	6587	10005	9837	9841

by no means clear that that is so. Differences in the way the career aspiration question was asked in the base year questionnaire may account for much of the difference.[26]

Table 47 displays the corresponding percentages of women who plan to be homemakers after background factors have been taken into account. The set of background factors used in the individual effects analysis was the same set used to model other career aspirations. Among these, a variable indicating that the respondent's mother had been a full-time homemaker proved to be a significant positive predictor. (See Table G.9, App. G.)

Table 48 shows the intergroup differences in these adjusted group percentages. It reveals a marked divergence in 1976 between women in the three education tracks and women in the full-time labor force. Fewer of the 1972 working women planned to become homemakers in 1976 than in 1974, whereas the 1972 students show no such decline. There are several possible explanations for this. For example, the decline in workers' plans to become homemakers may

[26]The likelihood that a woman will be a full-time homemaker varies considerably over the life-cycle. Many women who plan to be homemakers at age 30 plan to do other things at other ages. Because the base year questionnaire did not specify what age was to serve as a reference point, we suspect that many women in 1972 checked occupational categories that represented their *labor force* aspirations at ages other than 30. Because there is no way of knowing how many women might have done this, we consider it inappropriate to interpret "changes" between the base year and follow-up surveys.

Table 47

Adjusted Percentages of Women Who Plan To Be Homemakers at Age 30 by Postsecondary Track

Postsecondary Track as of October 1972	Adjusted Means				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
Students								
4-Year	4.4	22.0	22.8	24.4	1.29	1.90	1.98	1.93
2-Year	3.6	22.8	25.1	26.1	0.88	1.44	1.55	1.53
Voc-Tech	3.3	23.6	25.7	26.6	0.71	1.47	1.56	1.56
Workers								
Full-time	6.7	36.4	37.0	32.3	0.62	0.93	0.96	0.92
Part-time	10.7	38.0	38.9	35.9	1.66	2.02	2.09	2.06
Military	1.2	45.2	42.4	19.7	0.56	11.27	11.40	7.87
Homemakers	28.1	47.9	45.9	40.4	2.67	2.23	2.23	2.20
Unemployed	10.3	40.3	39.3	36.6	1.44	1.75	1.80	1.77
Unclassified	9.6	33.7	31.7	29.2	1.24	2.08	1.79	1.71

Table 48

Intergroup Differences in Adjusted Percentages of Women Who Plan To Be Homemakers at Age 30

Postsecondary Track as of October 1972	Differences from Full-time Workers				Standard Errors			
	1972	1973	1974	1976	1972	1973	1974	1976
Students								
4-Year	-2.3	-14.4	-14.3	-8.0	1.4	2.1	2.2	2.1
2-Year	-3.1	-13.6	-11.9	-6.3	1.1	1.7	1.8	1.8
Voc-Tech	-3.3	-12.8	-11.3	-5.7	0.9	1.7	1.8	1.8
Workers								
Full-time	----	----	----	----	----	----	----	----
Part-time	4.1	1.6	1.9	3.6	1.8	2.2	2.3	2.3
Military	-5.4	8.8	5.4	-12.6	0.8	11.3	11.4	7.9
Homemakers	21.4	11.5	8.9	8.0	2.7	2.4	2.4	2.4
Unemployed	3.6	3.9	2.3	4.2	1.6	2.0	2.0	2.0
Unclassified	2.9	-2.7	-5.4	-3.1	1.4	2.3	2.0	1.9

reflect a secular change in average economic circumstances; such a change might well affect women in different tracks differently. Alternatively, the divergence between these groups may reflect differences in life-cycle timing. Women who pursue higher education tend to defer marriage and family formation longer than women who enter the labor force. Thus, one would expect that many more women in the worker track than in the student track might, by 1976, begin revising their earlier plans in anticipation of completing the process of family formation.[27] The present analysis does not provide evidence on these alternative possibilities; it does, however, establish that there is a point at which the plans of young women who enroll in college are likely to shift relative to those of women in the labor force.

SATISFACTION WITH CAREER PROGRESS

Like sex-role attitudes, satisfaction with career progress was measured for the first time in the third follow-up survey in 1976. Because we have no (earlier) measures from which to calculate changes, we report only the results of a multiple regression analysis of this variable as of 1976.[28] From the standpoint of self-concept theory, the variable is potentially important, in that it attempts to measure how the individual assesses his or her progress in relation to self-defined goals.

Table 49 displays mean values on this measure by postsecondary track, while Table 50 presents the results of the regression analysis. The latter indicates that respondents who have attended a four-year college exhibit significantly greater satisfaction with their career progress in 1976 than workers, with this difference being somewhat greater for males than for females. There is a smaller (positive) coefficient for attendance at a vocational-technical school, but it is statistically significant only for women. Finally, males who were unemployed in 1972 are significantly less satisfied with their career progress four years later, providing further evidence for the existence of adverse long-term consequences associated with early unemployment.

Marriage has a positive relationship to career progress satisfaction in both sexes; for women, expecting to be married has a similar effect. Parenthood—particularly early parenthood—has a negative effect on women's career progress satisfaction.

Several high school measures have significant coefficients associated with them. These include: rank in class (positive), ability (negative), and vocational-technical program (positive for women).

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[27]For evidence on this point, see App. F.

[28]It is by no means clear that earlier measures would be meaningful in an analysis that compares, as ours does, students with workers. Before graduation the only way for students to assess their progress toward career goals is by judging their progress in completing school. Such judgments are qualitatively dissimilar from workers' judgments based on their labor market experiences.

Table 49

Mean Values of the 1976 Career Progress Satisfaction Index by Postsecondary Track

Postsecondary Track as of October 1972	Sample Mean	Sample Size
	FEMALES	
Students		
4-Year	3.11	2721
2-Year	3.03	1170
Voc-Tech	3.10	785
Workers		
Full-time	3.07	2585
Part-time	2.95	544
Military	3.00	20
Homemakers	2.94	516
Unemployed	2.98	789
Unclassified	3.01	720
	MALES	
Students		
4-Year	3.13	2747
2-Year	3.02	1243
Voc-Tech	3.07	453
Workers		
Full-time	3.01	2968
Part-time	2.99	375
Military	2.93	409
Unemployed	2.82	468
Unclassified	2.96	703

Table 50

Regression Results for Satisfaction with Career Progress as of 1976

Variable	Females b	Females t	Males b	Males t
Constant	3.03	34.1	3.12	36.4
Race/Ethnicity				
Black	-0.293	-10.6	-0.248	-8.3
Hispanic	-0.112	-2.6	-0.134	-3.1
Indian	0.041	0.5	-0.049	-0.6
Oriental	-0.071	-0.9	-0.139	-1.9
Other minority	-0.002	-0.0	-0.040	-0.8
Region				
Northeast	-0.021	-0.9	-0.013	-0.5
South	0.013	0.6	0.052	2.4
West	0.008	0.3	0.019	0.7
High school measures				
Ability	-0.0009	-2.4	-0.0018	-5.0
Percentile rank in class	0.0021	5.3	0.0028	7.2
Academic program	0.037	1.7	0.040	1.8
Vocational-technical program	0.048	2.3	0.037	1.6
Family background				
Father's education	0.0050	1.2	0.0080	1.9
Mother's education	-0.0032	-0.6	-0.0048	-0.9
Father's occupation (SEI)	0.0000	0.0	-0.0004	-0.9
Mother's professional status	0.001	0.0	0.009	0.3
Postsecondary track (1972)				
4-year student	0.059	2.3	0.123	4.8
2-year student	-0.023	-0.8	0.025	0.9
Vocational-technical student	0.065	2.1	0.074	1.9
Military	0.014	0.1	-0.067	-1.7
Homemaker	-0.076	-1.9		
Unemployed	0.008	0.3	-0.126	-3.4
Marital status (1976)				
Months since first marriage	0.0001	0.1	0.0009	0.9
Married	0.169	6.0	0.179	6.1
Divorced, widowed, or separated	-0.045	-1.0	-0.039	-0.7
Expecting to be married	0.139	4.7	0.117	4.1
Parenthood				
Parent by October 1973	-0.085	-2.1	-0.043	-0.7
Parent Nov. 1973 to Oct. 1974	-0.085	-2.4	-0.068	-1.4
Parent Nov. 1974 to Oct. 1976	-0.053	-1.9	-0.037	-1.2
Expecting parenthood, 1976	0.031	0.9	-0.012	-0.3
Two or more children, 1976	0.003	0.1	-0.006	-0.1
R^2	0.039		0.039	
S	0.800		0.789	
F	12.8		12.6	
N	9850		9366	

Finally, Table 50 reveals significant racial differences, with both blacks and Hispanics expressing less satisfaction with their progress than whites do. These coefficients are particularly large for blacks, indicating that they feel particularly dissatisfied in relation to their long-term goals.

V. CONCLUSIONS

There are two principal reasons for studying the kinds of outcomes examined in this report. First, they represent important aspects of people's lives; a sense of self-worth and of confidence in personal efficacy are no less important than physical health and economic well-being. Second, they are likely to shape people's behavior in important ways.

Throughout this report, we allude to theory and research based on the premise that self-conceptions and aspirations are influential in shaping the choices of career, decisions to seek further training, responses to being unemployed, and other aspects of behavior that are of concern to social policymakers. We ourselves have not examined whether self-conceptions do in fact play such a role; instead, our research has been aimed at clarifying the relationships between young people's postsecondary activities and their later attitudes and self-conceptions. Even a casual reading of the findings we have reported indicates that these relationships are quite complex. In this section, we coalesce our findings and examine their implications for future research.

THE MAGNITUDE OF TRACK EFFECTS

Our most general finding concerns the relative importance of postsecondary activities and initial differences among individuals in explaining subsequent attitudes and self-conceptions. Throughout our analyses, *initial* differences between young people who enter various postsecondary tracks are generally much greater than any relative changes that emerge thereafter. This finding holds even after we have adjusted for preexisting differences in ability, high school achievement, and family background.

There are several possible interpretations—not all mutually exclusive—of this general pattern of findings. First, there are undoubtedly some unmeasured initial differences among young people in different tracks. We cannot assume that *all* salient background variables were measured in the NLS (or included in this study). For example, young people's choices of activities immediately after high school might depend heavily on aspects of their social background and ability that are not captured in the measures available in the NLS. If any of those unmeasured variables are important, they might explain much more of the variation in outcomes that we observe for different tracks.

A second possibility is that initial group differences reflect real track "effects" resulting from the *anticipation* of postsecondary activity. Such differences could result directly from young people's previous choices. Alexander and Cook (1979) have shown, for example, that more than 40 percent of the NLS respondents reported having *decided* whether or not they would go to college

before they entered the tenth grade. Moreover, of those who planned to go to college at the time of the survey, 47 percent had already applied and 41 percent had been admitted. To the extent that some of the subjective effects associated with college attendance follow from the point at which young people *choose* to or *know* that they will attend, these figures establish that there was ample opportunity for such effects to occur prior to the base year survey. Unfortunately, our analyses do not permit us to distinguish "anticipatory" effects from preexisting differences.

However these initial differences are construed, the fact is that for most of our outcomes they are larger than the relative deviations over time and between groups that we have defined as track effects. For the most part, track effects under our rather conservative definition are quite small. It is well to bear in mind, however, that our analysis is designed to estimate *average* effects; nothing in our findings rules out the possibility of very large *individual* effects of postsecondary tracks for particular respondents or subgroups of respondents. Our individual effects model is designed to detect sizable effects that occur for a large proportion of the NLS respondents. It does not exploit the analytical possibilities of using the NLS to study individual changes per se; that would be the subject of another investigation.

LOCUS OF CONTROL IN MALE STUDENTS AND WORKERS

One important finding concerns differential track effects on young men's locus of control. We find that males who enter the full-time labor force or the military experience much more rapid gains in the sense of personal control over their lives than those who attend college. One possible interpretation of this finding is that early labor-market experiences (whether in the civilian or military sector) provide young men with a greater sense of personal competence than does the student role for those who attend college. Another possibility is that male workers gain assurance from their early start on economic independence—an experience denied to most students until they, too, join the labor force. Finally, it is possible that the effect reflects differential recovery from high school experiences. If young men's sense of personal control over their lives during their senior year is partly determined by their scholastic abilities and interests, then those who are not academically inclined stand to experience greater psychological gains by leaving school than their academically oriented classmates can experience by continuing.

These alternative explanations are, in principle, distinguishable, and one important next step with the NLS will be to sort them out. The "economic independence" explanation suggests that NLS respondents who attend college will experience similar jumps in locus of control after they graduate, a hypothesis than can be tested with the 1979 NLS wave. This explanation also suggests that gains in men's locus of control will be well predicted by favorable changes

in their economic circumstances (i.e., their ability to provide for their own or their family's needs). Our regression equations suggest that such relationships may exist, but the possibility should be explored more systematically.

The other explanations we have advanced also suggest specific relationships between changes in locus of control and other variables. The "increased competence" explanation could be explored by examining relationships between locus of control and job characteristics other than income; similarly, the explanation involving "recovery from high school experiences" points to further analyses involving measures of the quality of high school experience.

INSIGHTS FROM THE NLS DATA

The analysis we have reported has several features that distinguish it from most previous work. Among the most important are: (1) It presents parallel analyses of numerous outcome measures instead of merely one or two; (2) it is longitudinal as well as cross-sectional; (3) it stratifies respondents by sex, reporting separate but comparable analyses for women and men. It is, of course, the unusual properties of the NLS data base that make each of these features possible. But in capitalizing on those properties, the present study also provides an unusual perspective on the phenomena it addresses.

The examination of multiple measures reveals considerable diversity in the patterning of outcomes and their relationship to life choices. Researchers and policymakers alike, we suspect, often think of outcomes as more related than they really are. We tend to assume that social background factors and important life experiences will have generally "good effects" or "bad effects" on a variety of outcomes; that aspirations, expectations, self-esteem, and sense of personal efficacy, for example, will be affected by similar experiences in similar ways.

This tendency to assume unidimensionality undoubtedly makes these matters easier to think about, and it may even have a certain heuristic value. But there are striking differences in the determinants of these outcome measures. To be sure, most of the measures are related in sensible ways to the background factors and life choices we have examined. These relationships, however, are not always or even usually the same for different outcomes. Marriage, for example, appears to reduce educational aspirations, but to enhance satisfaction with career progress. Blacks exhibit higher career and educational aspirations (net of other background variables) and have higher self-esteem than whites, but they also report a lesser sense of control over their lives and less satisfaction with their progress in meeting long-term career goals. Such findings serve to remind us that life outcomes, like life choices, are multifaceted.

The time change analyses add a further dimension of complexity demonstrating that the relationships among variables often change systematically over time. The results suggest, for example, that cross-sectional analyses of data from high school seniors may tend to overestimate the (long-range) impor-

tance of certain relationships, such as that between high school program and career aspirations. The long-term strength of other relationships might be underestimated, e.g., the relationship between women's academic ability and their educational expectations.

Finally, stratification by sex reveals several noteworthy differences by gender. Orientations toward education and career are much more closely related to marriage and parenthood for women than for men. For example, marriage and recent parenthood are associated with a decrease in educational expectations among both men and women, but this decrease is much stronger in women. Marriage and parenthood also appear to depress women's career aspirations more than men's and to have a stronger effect on women's role orientations.

These and other findings add empirical weight to what many policymakers already know: Any attempt to guide, support, or otherwise influence career choices and the effects of these choices must, especially in the case of women, allow for the complex contingencies between these choices and those involved in family formation. Although our results show that women's attitudes and aspirations are indeed affected by postsecondary choices regarding education and career, these effects may often be mediated or modified by marriage and parenthood.

RECIPROCAL CAUSALITY

The implications of our findings depend to a large extent on whether self-conceptions are thought of exclusively as outcomes, or also as variables that have an independent influence in shaping young people's lives. The examination of this issue with NLS data will require a somewhat different methodology from the one we have used, applied to a different set of outcome variables. For example, because the NLS does not provide measures of aspirations and self-conceptions prior to the senior year, any analysis that attempts to use these variables to account for initial choices is inherently limited by the equivocality of cross-sectional findings. Base year values on these variables could, however, be used in modeling behavioral outcomes in later waves, e.g., the completion of education, actual career progress, changes in postsecondary activity, and success in establishing economic independence. We believe that an analysis relating attitudes and aspirations to later behavior is likely to be most fruitful if it examines the effects such attitudes might have for relatively homogeneous subgroups, rather than across all NLS respondents. The groups defined by our postsecondary tracking variables, for example, differ markedly in the outcomes that they are "at risk" of experiencing. Those who do not attend college are not at risk of dropping out. Analysis of the relationship between self-conceptions and later behavior will have to take such contingencies into account. In such analyses, the tracking variables we have defined here are likely to play an important role—not as independent variables, but as variables to be used in

decomposing the sample into meaningful subpopulations for studies of the future course of these young people's lives.

Appendix A

A MODEL FOR ESTIMATING THE INDIVIDUAL EFFECTS OF POSTSECONDARY EXPERIENCES FROM LONGITUDINAL DATA

This appendix summarizes the "individual effects" methodology used in this study to analyze the effects of postsecondary experiences on the aspirations and attitudes of the high school graduates of 1972 who participated in the National Longitudinal Survey (NLS). The methodology applies to situations in which individual measures of growth are available at several points in time. The aim is to determine how growth curves for individuals or groups of individuals are affected by "treatments" after allowing for differences in personal characteristics and background factors. Here, the measures of growth are derived from survey responses to questions on aspirations and attitudes; the treatments correspond to various postsecondary activities that affect the development of these attributes.

The individual effects methodology for analyzing longitudinal data is a variant of multivariate analysis of covariance in which certain commonly adopted assumptions about the pattern of the treatment effects are relaxed, thereby providing an analysis that is relatively free of stringent assumptions. The technique leads to simple procedures for estimating average effects for groups of individuals; these procedures are well suited for application to very large data sets and are readily adapted to handle missing values.

The main difference between individual effects models and ordinary analysis of covariance models is the assumption that the treatment effects are unpatterned and may vary widely from person to person, depending on a multitude of factors, many of which are unmeasured or unknown. The methodology depends upon having measures on the treated individuals both before and after the treatment, as well as analogous measures on individuals in a comparison (or "control") group with similar characteristics. The basic idea is that the effects of, say, college attendance on an individual's educational aspirations can be estimated by comparing the change in the student's aspirations before and after he entered college with the estimated change among individuals in the control group having similar attributes. For the purposes of this study, the control group for defining the effects of postsecondary experiences was taken to be the NLS respondents who were in the full-time civilian labor force as of October 1972.

To make the notions above more precise, let $Y = (Y_1, Y_2, ..., Y_k)$ denote a vector of outcome measures on an individual at k points in time; for simplicity,

the time points will be specified by the values $t = 1, 2, ..., k$. Assuming that each of the measures Y_t contains a random error of measurement e_t with $E(e_t) = 0$, we define the vector $\eta = (\eta_1, ..., \eta_k)$ of "true" responses corresponding to Y by

$$\eta = E(Y) = Y - e$$

where $e = (e_1, ..., e_k)$. If Y_1 is measured before treatment and the other components are measured after treatment, then the change (or "gain") in the true response through time t is $g(t) = \eta_t - \eta_1$. An unbiased estimator of this change is the corresponding "gain score" $G(t) = Y_t - Y_1$.

The gain $g(t)$ in the outcome measures through time t may not be due to the treatment itself but to other factors, such as natural growth, changes in the metric for the outcome measures, and other intertemporal effects. To allow for these other factors in defining the treatment effect, we assume that we have vectors of observations (X, Y) on both treated and untreated individuals, where X is a nonstochastic $1 \times p$ vector of baseline characteristics measured before treatment. Also, we assume that the components of X are suitably chosen so that the observations (X, Y) on individuals in the control group satisfy a linear model

$$Y = h(X) + e$$

where $h(X) = (h_1(X), ..., h_k(X))$ is a vector-valued linear function of X :

$$h(X) = \alpha + X\beta \ .$$

Here, α and β are $1 \times k$ and $p \times k$ matrices of parameters, and e is a $1 \times k$ vector of errors with mean zero. Under these assumptions, the expected change in the outcome measures for an individual in the control group with characteristics X is

$$E(Y_t - Y_1 \mid X) = h_t(X) - h_1(X) = (\alpha_t - \alpha_1) + X(\beta_t - \beta_1)$$

where β_t is the t^{th} column of β .

In this notation, the effect of the treatment through time t upon an individual with characteristics X is defined to be

$$\Delta_t = g(t) - [h_t(X) - h_1(X)] \ ,$$

i.e., the gain in the outcome measure minus the expected gain for individuals in the control group having the same characteristics. Under the above assumptions, the difference in expected outcomes between the treatment and control groups for an individual with characteristics X is the $1 \times k$ vector

$$\delta = \eta - h(X) \ .$$

In terms of δ, the treatment effect through time t is given by

$$\Delta_t = \delta_t - \delta_1 \ .$$

Thus far, our assumptions about the observations (X, Y) can be summarized as follows:

Control group: $Y = h(X) + e = \alpha + X\beta + e$

Treatment group: $Y = \eta + e = \delta + h(X) + e$

Since the vector η is unrestricted in this formulation, it is free to vary widely and unsystematically from individual to individual, as are the treatment effects. While this model may seem unduly unstructured to analysis of covariance practitioners, it embodies the common belief that postsecondary experience can have markedly different effects on two individuals with like characteristics. Also, whereas the model may seem unwieldy and overparameterized by comparison with standard analysis of covariance models, it leads to tractable procedures for estimating the average effect for individuals in certain categories or "treatment groups."

Although we are not interested in estimating the individual effects in this study, the methodology below provides a means for doing so. Given estimates of the individual effects for a sample of persons in the same treatment group, one can estimate the average effect for the group by simply averaging the estimates of the individual effects. However, this two-stage procedure requires considerable computation in large data sets. To shortcut this procedure, formulas for the average effect are provided below that are similar to analysis of covariance formulas for estimates of treatment effects and do not entail estimating the individual effects.

We pause to acknowledge the fact that the above definition of treatment effects is somewhat arbitrary. Here are some alternatives that were considered:

1. The individual effect of the treatment through time t could have been defined as the gain g(t) in the outcome measure. Although this definition would not allow for natural growth in the outcome measure and other intertemporal factors unrelated to the treatment, this is a legitimate definition. In this case, an estimate of the average effect for individuals in some group is the mean gain score for that group.

2. The individual effect of the treatment through time t could have been defined as δ_t, the t^{th} component of δ, rather than Δ_t. In the absence of a pretreatment score Y_1, it is common to refer to the differences from the control group as "effects," even though the differences may be entirely due to preexisting differences on the outcome measure. Also, in this study, there is some

basis for arguing that δ_1, the base year difference, represents an "anticipatory effect" of the treatment (say, college attendance) or an effect resulting from plans to undertake the treatment. Since there is no basis for ruling out the δ_t's as effects and these parameters are of interest for their own sake (especially δ_1), we shall simply call these parameters "nominal effects" to distinguish them from the "real effects" Δ_t.

3. We have implicitly excluded the pretreatment measure Y_1 from the vector of baseline characteristics X, but some would prefer that the pretreatment measure be included as a covariate in analyzing the posttreatment outcome measures. Although including Y_1 as one of the components of X would not invalidate the above formulation (it would imply that $\delta_1 = 0$ and $\Delta_t = \delta_t$), we recommend against this practice. Lord (1967) and Campbell and Erlebacher (1970) have pointed out that such a procedure can lead to regression artifacts in comparing treatments based upon quasi-experimental data.

4. The individual effects could have been treated as random rather than fixed effects. Here, we were led by the computational simplicity of the procedures under the fixed effects model and the lack of any basis for assuming that the NLS respondents in the various categories were randomly drawn from the population of interest. For a general discussion of the considerations behind the choice of fixed or random effects models, see Searle (1971, Chapter 9).

Next, consider the problem of estimating the treatment effects based upon observations of outcome measures Y from several groups of individuals:

Control group: $Y_{11}, Y_{12}, \ldots, Y_{1n_1}$

Treatment groups: $Y_{21}, Y_{22}, \ldots, Y_{2n_2}$

$\ldots$

$Y_{I1}, Y_{I2}, \ldots, Y_{In_I}$

Associated with each $1 \times k$ vector of observations Y_{ij} is a $1 \times p$ vector of characteristics X_{ij} having components that are deemed suitable for predicting the vectors Y_{ij} in the absence of the treatments.

Adopting the individual effects formulation above, we hypothesize the following model:

$$Y_{1j} = \alpha + X_{1j}\beta + e_{1j} \tag{1}$$

$$Y_{ij} = \eta_{ij} + e_{ij} \qquad \text{for } i = 2, 3, \ldots, I.$$

The $1 \times k$ vector of nominal treatment effects (or differences) for the j^{th} individual in the i^{th} treatment group is defined by

$$\delta_{ij} = \eta_{ij} - (\alpha + X_{ij}\beta) \tag{2}$$

Alternatively, the model (3) can be specified in the form

$$Y_{ij} = \delta_{ij} + \alpha + X_{ij}\beta + e_{ij} \tag{3}$$

where $\delta_{ij} = 0$ for all j.

The treatment effects corresponding to Y_{ij} are defined by

$$\Delta_{ijt} = \delta_{ijt} - \delta_{ij1} \qquad \text{for } t = 2, 3, \ldots, k . \tag{4}$$

To simplify notation below, we shall assume that $k = 2$ throughout, so that each observation $Y_{ij} = (Y_{ij1}, Y_{ij2})$ consists of a single pretreatment and posttreatment measure. In this case, we can abbreviate Δ_{ij2} to Δ_{ij} without ambiguity.

The model makes no assumptions whatsoever about the pattern of the differences δ_{ij} for the treated individuals. By contrast, the usual analysis of covariance model for comparing treatments can be parameterized in the form

$$Y_{ij} = \delta_i + \alpha + X_{ij}\beta + e_{ij} \tag{5}$$

where $\delta_1 = 0$. This amounts to assuming that the treatment effect is the same for all individuals in the same treatment group. Estimation procedures for models (3) and (5) will be compared below.

A third alternative that will be considered stems from the assumption that the means η_{ij} are linear functions of the X_{ij}'s within each group, but the regression coefficients differ from group to group as follows:

$$Y_{ij} = \alpha_i + X_{ij}\beta_i + e_{ij} . \tag{6}$$

In this case, the nominal effect for the j^{th} individual in the i^{th} treatment group relative to the control group would be defined by

$$\delta_{ij} = \eta_{ij} - (\alpha_1 + X_{ij}\beta_1) = (\alpha_i + X_{ij}\beta_i) - (\alpha_1 + X_{ij}\beta_1) . \tag{7}$$

In either of the cases (2) and (7), the average of the nominal effects for individuals in the i^{th} group are the coordinates of

$$\delta_{i.} = \Sigma_{j=1}^{n_i} \delta_{ij} / n_i , \tag{8}$$

and the average treatment effect in the i^{th} group is

$$\Delta_{i.} = \delta_{i.2} - \delta_{i.1} . \tag{9}$$

Under the assumptions that the errors e_{ij} are independent random vectors with mean zero and covariance matrix Σ, the best linear unbiased estimators (BLUEs) of the parameters of the models (3) and (6) are obtained by using the least-squares estimators for each coordinate of Y. This is an implication of the multivariate analogue of the Gauss-Markov Theorem. See Timm (1975, p. 187). Thus, under the individual effects model (3), the BLUEs of the parameters δ_{ijt}, α_t, and β_t are the values that minimize

$$\sum_i \sum_j (Y_{ijt} - \delta_{ijt} - \alpha_t - X_{ij}\beta_t)^2 .$$

Here, we are implicitly assuming that there are no missing values, a ubiquitous problem throughout this study that will be discussed later. In the case that the data are complete, it follows readily from a consideration of the least-squares criterion that the BLUEs can be obtained using the following three-stage procedure:

(a) Estimate the parameters α and β using the least-squares estimators $\hat{\alpha}$ and $\hat{\beta}$ based upon the control group observations only.

(b) Predict the responses Y_{ij} for the treated individuals *ignoring the possible treatment effects* using

$$\tilde{Y}_{ij} = \hat{\alpha} + X_{ij}\hat{\beta} . \tag{10}$$

(c) Estimate the nominal effects using

$$\hat{\delta}_{ij} = Y_{ij} - \tilde{Y}_{ij} . \tag{11}$$

It then follows from the Gauss-Markov Theorem that the BLUEs of the average nominal effects are

$$\hat{\delta}_{i.} = \sum_{j=1}^{n_i} \hat{\delta}_{ij} / n_i \tag{12}$$

Since the average treatment effects are linear functions of the nominal effects, it follows from (9) that the BLUEs of the average treatment effects are given by

$$\hat{\Delta}_{i.} = \hat{\delta}_{i.2} - \hat{\delta}_{i.1} . \tag{13}$$

For the purposes of this study, we have chosen to report estimates of the average nominal effects $\hat{\delta}_{i.}$ throughout (referred to in the tables as the "adjusted intergroup differences"). Since the corresponding BLUEs of the average treatment effects are readily obtained by differencing the average nominal effects, these estimates have not been reported.

Alternatively, the BLUEs of the average treatment effects could have been obtained (from complete data) by applying an individual effects model to the

gain scores $G_{ij}(t) = Y_{it} - Y_{i1}$. We have not chosen to do so for several reasons: (a) the prevalence of missing values in the NLS, especially in the base year survey, would lead to discarding a sizable proportion of the cases for which the gain scores could not be calculated; (b) the estimates of the average treatment effects are readily obtained from the adjusted intergroup differences; (c) there is considerable interest associated with the pretreatment differences and in comparing these differences with posttreatment differences; and (d) it is computationally more convenient to handle the pretreatment measures in the same way that the posttreatment measures are handled.

In large data sets or in the case of missing values, it is not feasible to evaluate the estimates of the average effects using the three-stage procedure outlined above. To obtain simpler formulas comparable to those used in analysis of covariance, let $\bar{Y}_i$ denote the mean of the outcome vectors in the i^{th} group and let $\bar{X}_i$ denote the corresponding mean vector of the X_{ij}'s. Since

$$\hat{\delta}_{ij} = Y_{ij} - \hat{\alpha} - X_{ij}\hat{\beta} = (Y_{ij} - \bar{Y}_1) - (X_{ij} - \bar{X}_1)\hat{\beta} , \qquad (14)$$

it follows that

$$\hat{\delta}_{i.} = (\bar{Y}_i - \bar{Y}_1) - (\bar{X}_i - \bar{X}_1)\hat{\beta} . \qquad (15)$$

This is the formula that was actually used in the calculations, where the means and regression coefficients were estimated from the incomplete data. The means, variances, and correlations needed to compute the regression coefficients $\hat{\beta}$ were estimated separately by sex from the control group observations using the CORPAIR method described in *BMDP Biomedical Computer Programs, P-series,* University of California Press, 1979, Chapter 12.

It is interesting to compare the estimators in (15) with the estimators derived under alternative assumptions. The corresponding analysis of covariance formula for the model specified by (5) is like (15) except that the vector of regression coefficients $\hat{\beta}$ computed from the control group observations is replaced by the pooled estimator of β across the control and treatment groups. In cases where the mean vectors $\bar{X}_i$ differ considerably and the within-group regression coefficients also differ, the analysis of covariance formula can lead to considerable bias in estimating the average treatment effects.

Instead of assuming that the individual treatment effects are completely unpatterned, one may want to make the assumptions implicit in the "heterogeneous slopes" model (6) in which the observations within each group are assumed to satisfy a linear model, but the regression coefficients are permitted to differ across groups. In the latter case, it can be shown that the BLUEs of the average effects defined by (7) and (8) are exactly the same as in (15). That is, the estimates of the average nominal effects as well as the average treatment effects are exactly the same whether one adopts the individual effects model or the heterogeneous slopes model. However, the estimates of the residual variances (i.e., the diagonal elements of Σ) are different in the two models, leading to different t-statistics and standard errors for the regression coefficients.

In deriving formulas for the standard errors of the "adjusted means" and the average nominal effects, we can assume that each vector Y_{ij} consists of just a single outcome measure, in which case the covariance matrix Σ reduces to a single element σ^2. The residual sum of squares SS_e for estimating σ^2 in the individual effects model (3) is the residual sum of squares for the control group only. In the case of missing data, SS_e can be estimated using the formula

$$SS_e = n_1(1 - R^2)s_y^2 \ , \tag{16}$$

where s_y^2 is the sample variance of Y in the control group, and R is the multiple correlation coefficient of Y with the components of X. Except for the calculation of the means $\bar{Y}_i$ and $\bar{X}_i$, all calculations are performed on the control group observations only; this leads to substantial computational savings in analyzing large data sets, especially when missing-values techniques are required. By contrast, the residual sum of squares for the model (6) is the pooled residual sum of squares over all treatment groups, which requires separate regression calculations for each group. Thus, although the models (3) and (6) yield the same estimates of the average treatment effects, the less restrictive model (3) leads to simpler calculations.

The adjusted means reported in several tables in this study are analogous to the adjusted means often reported in conjunction with analysis of covariance. They are defined by

$$\tilde{Y}_i = \bar{Y}_i + (\bar{X}_1 - \bar{X}_i)\hat{\beta} \ . \tag{17}$$

The variances of these adjusted means are given by

$$\mathrm{Var}(\tilde{Y}_i) = (\sigma^2/n_i) + (\bar{X}_1 - \bar{X}_i)\,\Sigma_{\hat{\beta}}\,(\bar{X}_1 - \bar{X}_i)' \ , \tag{18}$$

so that the standard errors of the adjusted means can be calculated from

$$\mathrm{s.e.}(\tilde{Y}_i) = [(S^2/n_i) + (\bar{X}_1 - \bar{X}_i)\,\hat{\Sigma}_{\hat{\beta}}\,(\bar{X}_1 - \bar{X}_i)']^{1/2} \ , \tag{19}$$

where S^2 and $\hat{\Sigma}_{\hat{\beta}}$ are the usual unbiased estimators of σ^2 and $\Sigma_{\hat{\beta}}$. Note that formulas (17) to (19) also apply when $i = 1$, the control group index.

To obtain formulas for the standard errors of the estimated average nominal effects, we note that $\hat{\delta}_{i.} = Y_{i.} - Y_{1.}$ and use the fact that $Y_{i.}$ and $Y_{1.}$ are uncorrelated to obtain that

$$\mathrm{Var}(\hat{\delta}_{i.}) = \mathrm{Var}(\tilde{Y}_i) + \mathrm{Var}(\tilde{Y}_1) \quad \text{for} \quad i > 1 \ , \tag{20}$$

implying that

$$[\mathrm{s.e.}(\hat{\delta}_{i.})]^2 = [\mathrm{s.e.}(\tilde{Y}_i)]^2 + [\mathrm{s.e.}(\tilde{Y}_1)]^2 \ . \tag{21}$$

Thus, given the adjusted means and their standard errors, one can immediately derive the $\hat{\delta}_i$'s and their standard errors.

Returning to the case that each Y_{ij} consists of two measures (pretreatment and posttreatment), consider estimating the average treatment effect for the i^{th} group using

$$\hat{\Delta}_{i.} = \hat{\delta}_{i.2} - \hat{\delta}_{i.1} \quad . \tag{22}$$

Since

$$\mathrm{Var}(\hat{\Delta}_{i.}) = \mathrm{Var}(\hat{\delta}_{i.2}) + \mathrm{Var}(\hat{\delta}_{i.1}) - 2\,\mathrm{Cov}(\hat{\delta}_{i.1}, \hat{\delta}_{i.2}) \tag{23}$$

and since the covariance on the right will tend to be positive (assuming the individual outcomes are positively correlated), an approximation for the standard error that will ordinarily serve as an upper bound is

$$[\mathrm{s.e.}(\hat{\Delta}_{i.})]^2 \tilde{=} [\mathrm{s.e.}(\hat{\delta}_{i.1})]^2 + [\mathrm{s.e.}(\hat{\delta}_{i.2})]^2 \tag{24}$$

Thus, the average treatment effects and (bounds for) their standard errors are easily calculated from the tables reporting the intergroup differences in the adjusted means.

In the event that the vectors of outcome variables Y_{ij} have dichotomous components, the above methodology requires numerous modifications. For any pair (X, Y) in the control group, we assume that $Y_t \sim$ Bernoulli $[f_t(X)]$ where

$$f_t(X) = P(Y_t = 1) = 1/[1 + \exp-(\alpha + X\beta)] \quad . \tag{25}$$

To facilitate the discussion below, we shall assume that Y consists of a single component and drop the subscripts t.

Suppose that the effect of the i^{th} treatment is to change $P(Y = 1)$ from its value $f(X)$ in the control group to $p_i(X)$, where $p_i(X)$ is the regression function for the i^{th} group. Then the nominal effect for the j^{th} individual in the i^{th} group can be defined as

$$\delta_{ij} = p_i(X_{ij}) - f(X_{ij}) \quad . \tag{26}$$

The problem is to estimate the average nominal effect defined by

$$\delta_{i.} = \Sigma_{j=1}^{n_i} [p_i(X_{ij}) - f(X_{ij})]/n_i \quad . \tag{27}$$

To simplify notation below, we consider the case in which there is only a single treatment group and drop the subscript i.

If f were known, an unbiased estimator of δ would be $\bar{Y}_2 - \Sigma f(X_j)/n_2$. In this study, we considered estimating δ using

$$\hat{\delta} = \bar{Y}_2 - \Sigma\, \hat{f}(X_j)/n_2 \qquad (28)$$

where $\hat{f}(x)$ is the estimated regression function for the control group, i.e.,

$$\hat{f}(x) = 1/[1 + \exp-(\hat{\alpha} + X\hat{\beta})] \qquad (29)$$

where $\hat{\alpha}$ and $\hat{\beta}$ are the discriminant function estimates of α and β. (The reason for using the discriminant function estimates is that they are readily adapted to the missing values case.)

Unfortunately, the second term on the right in (28) is not well suited for handling missing values. After investigating a number of approximations to (28) in complete data sets, we adopted

$$\hat{\delta} = \bar{Y}_2 - \hat{f}(\bar{X}_2) \ . \qquad (30)$$

The standard error of this estimator can be approximated using

$$\text{s.e.}(\hat{\delta}) = [\bar{Y}_2(1 - \bar{Y}_2)/(n_2 - 1) + \bar{Y}_1(1 - \bar{Y}_1)/(n_1 - 1) \qquad (31)$$

$$+ (\bar{X}_2 - \bar{X}_1)\hat{\Sigma}_b(\bar{X}_2 - \bar{X}_1)']^{1/2}$$

where $\hat{\Sigma}_b$ is the estimated covariance matrix of b that results from fitting a linear equation to the control group observations.

The adjusted means for the dichotomous case are defined by

$$\tilde{Y}_i = \bar{Y}_i + \bar{Y}_1 - \hat{f}(X_i) \qquad \text{for } i = 2, 3, \ldots, I. \qquad (32)$$

$$\tilde{Y}_1 = \bar{Y}_1$$

The corresponding standard errors of the adjusted means can be calculated from

$$\text{s.e.}(\tilde{Y}_i) = [\bar{Y}_i(1 - \bar{Y}_i)/(n_i - 1) + (\bar{X}_i - \bar{X}_1)\hat{\Sigma}_b(\bar{X}_i - \bar{X}_1)']^{1/2}. \qquad (33)$$

With these changes, the calculations for the dichotomous case become similar to those for the continuous case.

Appendix B

CODES FOR POSTSECONDARY TRACK VARIABLES

To classify the NLS respondents into postsecondary tracks, we began by classifying them according to their student and occupational status during the first week of October in each of the four years from 1972 to 1976. These initial classifications were based on a set of "activity state variables" on the NLS tape that provided researchers with a single set of created variables summarizing information from many different items. These activity state variables, documented in App. N of Levinsohn et al. (1978), consist of a set of eight variables, ACT1—, ACT2—, ..., ACT8—, where the blanks are filled in by 72, 73, 74, 75, or 76 to designate year. The variables provide coded responses to the following questions:

ACT1	Studying?
ACT2	(If studying) What type of school?
ACT3	(If studying) Full-time study?
ACT4	Working?
ACT5	(If working) Full-time work?
ACT6	Full-time homemaker?
ACT7	If not working, looking for work?
ACT8	Military service?

These variables have certain shortcomings. Logical inconsistencies appear in some cases (e.g., Studying = "No"; Full-time Study = "Yes"), and missing values are not estimated as well as they might be. Nevertheless, the variables provide sufficient information to track most respondents. In addition, they make use of data from the NLS supplemental activity survey, data that are not otherwise available on the file.

Our tracking variables, TRACK—, are evaluated using two intermediate variables, STUDENT— and LABOR—, which specify student status and labor force participation status in each year. The codes for these variables are:

STUDENT — Student status for year —

Codes:	1	Full-time, 4-year institution
	2	Full-time, 2-year institution
	3	Full-time, voc-tech college
	4	Full-time, other or unknown

	5	Part-time, 4-year institution
	6	Part-time, 2-year institution
	7	Part-time, voc-tech college
	8	Part-time, other or unknown
	9	Nonstudent
	10	Student status unknown

LABOR -- Labor force participation status for year —

Codes:	1	Full-time worker
	2	Part-time worker
	3	Military services
	4	Full-time homemaker
	5	None
	6	Labor status unknown

TRACK — Postsecondary track for year —

Codes:	1	Student (4-year institution)
	2	Student (2-year college)
	3	Student (Voc-tech college)
	4	Worker (Full-time)
	5	Worker (Part-time)
	6	Military
	7	Homemaker
	8	Unemployed
	9	Unclassified

The specifications used to arrive at these codes are as follows:

STUDENT

Code	Coding specification
1	ACT1 = 1, ACT3 = 1, and ACT2 = 3
2	ACT1 = 1, ACT3 = 1, and ACT2 = 2
3	ACT1 = 1, ACT3 = 1, and ACT2 = 1
4	ACT1 = 1, ACT3 = 1, and ACT2 > 3
5	ACT1 = 1, ACT3 = 2, and ACT2 = 3
6	ACT1 = 1, ACT3 = 2, and ACT2 = 2
7	ACT1 = 1, ACT3 = 2, and ACT2 = 1
8	ACT1 = 1, ACT3 = 2, and ACT2 > 3
9	ACT1 = 2 and ACT3 > 2
10	All others

LABOR

Code	Coding specification
1	ACT4 = 1, ACT5 = 1, and ACT8 > 1
2	ACT4 = 1, ACT5 = 2, ACT6 > 1, and ACT8 > 1

3 ACT8 = 1
4 ACT6 = 1 and ACT8 > 1
5 ACT4 = 2, ACT5 > 2, ACT6 > 1, and ACT8 > 1
6 All others

The cross-tabulations of the student and labor status variables shown in Table B.1 reveal considerable overlap between college attendance and labor force participation. Numerous respondents were classified as full-time students with full-time or part-time jobs. To place respondents into mutually exclusive postsecondary tracks, a priority scheme was adopted. Each respondent was placed in the first track for which he or she qualified. Individuals who did not meet the criteria for any track category (e.g., nonrespondents to the first follow-

Table B.1

COUNTS OF EMPLOYMENT/STUDENT STATUS CATEGORIES AS OF OCTOBER 1972

Labor Force Participation	Student Status: Full-time 4-yr	Full-time 2-yr	Full-time Voc-tech	Full-time Other/Unknown	Part-time 4-yr	Part-time 2-yr	Part-time Voc-tech	Part-time Other/Unknown	Non-student	Status Unknown	Total
FEMALES											
Civilian labor force											
Full-time	47	78	82	37	22	76	37	17	2703	102	3201
Part-time	700	533	205	60	18	57	26	6	618	38	2261
Military service	1	0	2	0	0	0	1	0	17	2	23
Homemaker	36	26	24	26	2	0	4	0	559	24	701
None	2175	649	554	109	13	51	20	5	954	76	4606
Unknown	15	14	8	3	5	1	0	1	23	474	544
Total	2974	1300	875	235	60	185	88	29	4874	716	11336
MALES											
Civilian labor force											
Full-time	154	211	128	52	24	79	60	14	3205	139	4066
Part-time	796	600	159	59	19	47	9	5	445	39	2178
Military service	5	5	22	26	1	0	1	4	367	52	483
Homemaker	38	11	3	1	0	1	0	0	4	1	59
None	2069	577	211	87	20	32	10	6	603	52	3667
Unknown	27	18	10	1	1	1	1	1	31	623	714
Total	3089	1422	533	226	65	160	81	30	4655	906	11167

up survey) were assigned to an unclassified category. The track categories, priorities, and criteria are as follows:

Priority	Track	Assignment Criterion
1	Military	LABOR = 3
2	Student (4-year)	STUDENT = 1
3	Student (2-year)	STUDENT = 2
4	Student (Voc-tech)	STUDENT = 3
5	Worker (Full-time)	LABOR = 1
6	Homemaker	LABOR = 4 and SEX = female
7	Worker (Part-time)	LABOR = 2 and STUDENT = 9
8	Unemployed	LABOR = 5 and STUDENT = 9
9	Unclassified	All others

Because the track variables indicate respondents' activities at a single point in time, we were concerned about the number of respondents who might have switched tracks between October 1972 and October 1973. If those numbers were large, it would suggest that categorizing respondents by their activities in October 1972 has only limited value in capturing their enduring choices. However, as Table 4 above has shown, persistence in most tracks is very high during the first year.

Appendix C

DEFINITIONS OF DERIVED VARIABLES

This appendix lists the definitions of the outcome measures and independent variables (other than the postsecondary track variables) used in the various analyses of this study. The list also includes certain other variables that did not appear in the analyses but were needed to define variables that did. For the most part, the variables are defined in terms of responses to questionnaire items. In listing the questionnaire items the following abbreviations were used:

BQ—Base Year Questionnaire
FQ—First Follow-up Questionnaire
SQ—Second Follow-up Questionnaire
TQ—Third Follow-up Questionnaire

For example, FQ14 refers to Item 14 on the First Follow-up Questionnaire. The users' manual for the NLS file (Levinsohn et al., 1978) contains copies of the questionnaires as well as counts of the responses to the items.

In some cases, the derived variables are defined in terms of created variables on the NLS file. The NLS variables (e.g., 'CRACE') are listed in single quotation marks to distinguish them from the variables on this list. Missing values are coded "−9" throughout.

Variable Name	Short Label	Definition
ABLE	Ability Composite Score	('SCLGSC' + 'SCMATSC' + 'SCRDSC' + 'SCVOCSC') if all four scores are given, missing otherwise.
ACADEMIC	Academic or College Preparatory Program	1 if 'HSPGM' = 2, missing if 'HSPGM' > 3, 0 otherwise.
BLACK	Black, Afro-American, or Negro	1 if 'CRACE' = 2, missing if 'CRACE' > 8, 0 otherwise.
CARASP72	Career Aspiration Index, 1972	Recodes BQ25 as follows: BQ25: 1 2 3 4 5 6 7 CARASP72: 35 24 33 36 10 49 48 BQ25: 8 9 10 11 12 13 14 CARASP72: 15 70 42 31 38 25 40
CARASP73 CARASP74 CARASP76	Career Aspiration Indices, 1973-1976	Recodes FQ19, SQ142A, TQ44X as follows: RESPONSE: 1 2 3 4 5 6 7 8 CARASP: 35 24 33 36 10 49 48 15 RESPONSE: 9 10 11 12 13 14 15 16 CARASP: 64 80 42 31 38 63 25 40
CATHOLIC	Roman Catholic	1 if BQ92 = 2, missing if BQ92 > 6, 0 otherwise.
COMM72 COMM73 COMM74 COMM76	Orientation Toward Community, 1972, 1973, 1974, 1976	Same as 'COMM' variables on the NLS tape except that COMM74 and COMM76 are transformed to correct for scale inversion on 1974 and 1976 surveys.
DIVORC76	Indicates Divorced, Widowed, or Separated as of October 1976	1 if MAR76 = 3, missing if MAR76 = -9 or 4, 0 otherwise.
EDEXP72	Years of Educational Attainment Expected, 1972	Recodes BQ29B as follows: BQ29B: 1 2 3 4 5 6 EDEXP72: 11 12 13 14 16 18
EDEXP73 EDEXP74 EDEXP76	Years of Educational Attainment Expected, 1973, 1974, 1976	Recodes FQ14, SQ140, and TQ49B as follows: RESPONSE: 1 2 3 4 5 6 7 EDEXP: 12 13 14 14 16 18 20
EDMA	Mother's Educational Attainment	Recodes FQ78B as follows: FQ78B: 1 2 3 4 5 6 7 8 9 EDMA: 8 11 12 13 14 14 16 18 20
EDPA	Father's Educational Attainment	Same coding as for EDMA but uses FQ78A instead of FQ78B.
ESTEEM72 ESTEEM73 ESTEEM74 ESTEEM76	Self-esteem, 1972, 1973, 1974, 1976	Same as 'CONCPT' variables on the NLS tape except the scale is inverted (ESTEEM = 6 - 'CONCPT' and missing values are recoded.
EXPMAR76	Indicates Plans to get Married, 1976	1 if TQ129 = 1 and MAR76 = 1, missing if TQ129 > 4 or MAR76 = - 9, 0 otherwise.
EXPPAR76	Indicates First Child Expected, 1976	1 if TQ138C = 2 and NCHILD76 = 0, missing if TQ138C > 7 and MIN(NCHILD73, 74, 76) < 1, 0 otherwise.
FAM72 FAM73 FAM74 FAM76	Orientation Toward Family, 1972, 1973, 1974, 1976	Same as 'FAMILY' variables on NLS tape except that missing values are not estimated from partial responses and scores are corrected for scale inversion in 1974 and 1976.

Variable Name	Short Label	Definition
FIRSTPAR	Timing of First Child	1 if NCHILD73 > 0 2 if NCHILD73 = 0, NCHILD74 > 0 3 if NCHILD74 = 0, NCHILD76 > 0 4 if some NCHILD > 0, timing uncertain 5 if NCHILD73 = NCHILD74 = NCHILD76 = 0 (For coding specifications see Blaschke et al., 1976.)
FROLEA76	Attitudes Toward Traditional Family Priority, 1976	Average of responses to TQ150B, D, F, H, and J recoded so that 1 = disagree strongly, 2 = disagree, 3 = agree, 4 = agree strongly; missing if any item is missing.
FROLEB76	Attitudes Toward Equal Employment, 1976	Same as FROLEA76 except that responses to TQ150C, E, G, and I are used.
HISPANIC	Mexican-American, Chicano, Puerto Rican, or Other Latin-American Origin	1 if 'CRACE' = 3, 4, or 5; missing if 'CRACE' > 8; 0 otherwise.
HOMASP72	Planning to be a Homemaker in the Future, 1972	1 if CARASP72 = 36, 0 otherwise.
HOMASP73 HOMASP74 HOMASP76	Planning to be a Homemaker at Age 30, 1973, 1974, 1976	Coded like HOMASP72 but using CARASP73, CARASP74, and CARASP76 instead of CARASP72.
INDIAN	American Indian	1 if 'CRACE' = 1, missing if 'CRACE' > 8, 0 otherwise.
JEWISH	Jewish	1 if BQ92 = 4, missing if BQ92 > 6, 0 otherwise.
JOBSAT76	Satisfaction with Career Progress, 1976	TQ46 recoded so that 1 = very dissatisfied, 2 = dissatisfied, 3 = satisfied, 4 = very satisfied.
KIDS276	Indicates Parents of Two or More Children, 1976	1 if NCHILD76 > 1, missing if NCHILD76 = -9, 0 otherwise.
LOCUS72 LOCUS73 LOCUS74 LOCUS76	Locus of Control, 1972, 1973, 1974, 1976	Same as 'LOCUS' variables on the NLS tape except for missing values.
MALE	Male indicator	2 - 'CSEX'
MAHOME	Mother's Homemaker Status	1 if BQ25C = 4, missing if BQ25C > 14, 0 otherwise.
MAPROF	Mother's Professional Status	1 if BQ25C = 6, missing if BQ25C > 14, 0 otherwise.
MAR76	Marital Status as of October 1976	1 = single; 2 = married; 3 = divorced; 4 = once married, current status unknown; -9 = unknown. (For coding specifications see Blaschke et al., 1976.)
MARDUR	Duration of Marriage	Months from date of first marriage to October 1976.

Variable Name	Short Label	Definition
NCHILD73 NCHILD74 NCHILD76	Number of Children as of October 1973, 1974, 1976	0 = none, ..., 6 = six or more, -9 = unknown. (For coding specifications see Blaschke et al., 1976.)
NEAST	Northeast	1 if 'REGION' = 1, 0 otherwise.
ORIENTAL	Oriental or Asian-American	1 if 'CRACE' = 6, missing if 'CRACE' > 8, 0 otherwise.
OTHER	Other Minority	1 if 'CRACE' = 8, missing if 'CRACE' > 8, 0 otherwise.
PALSCOLL	College Plans of Close Friends	1 if BQ16 = 4, missing if BQ16 > 8, 0 otherwise.
PROASP72	Planning a Professional Career, 1972	1 if CARASP72 > 60, 0 otherwise.
PROASP73 PROASP74 PROASP76	Planning a Professional Career, 1973, 1974, 1976	Coded like PROASP72 but using CARASP73, CARASP74, and CARASP76 instead of CARASP72.
RANK	Percentile Rank in Class	Same as 'SRIFPRK' except 0 is recoded to 1, and missing values are recoded.
SEIFAOCP	Duncan SEI Score of Father's Occupation	Same as 'SEIFAOCP' except for missing values.
SIBS	Number of Siblings	MIN(SQ119A + SQ119B + SQ120A + SQ120B, 5) if all items are complete, missing otherwise.
SIBSCOLL	Number of Siblings in College, 1972	Same as BQ87 except for missing values.
SOUTH	South	1 if 'REGION' = 3, 0 otherwise.
TIMEPAR	Vector of Three Indicator Variables for Timing of First Child	Kth component = 1 if FIRSTPAR = K, missing if FIRSTPAR = 4, 0 otherwise.
VOCTECH	Vocational-Technical Program	1 if 'HSPGM' = 3, missing if 'HSPGM' > 3, 0 otherwise.
WED76	Indicates Married as of October 1976	1 if MAR76 = 2, missing if MAR76 = 4 or missing, 0 otherwise.
WEST	West	1 if 'REGION' = 4, 0 otherwise.
WORK72 WORK73 WORK74 WORK76	Orientation Toward Work, 1972, 1973, 1974, 1976	Same as 'WORK' variables on the NLS tape except that WORK74 and WORK76 are transformed to correct for scale inversion on 1974 and 1976 surveys.

Appendix D

DEVELOPMENT OF THE CAREER ASPIRATION INDEX

On each of three follow-up surveys (1973, 1974, and 1976), NLS respondents were asked, "What kind of work will you be doing when you are 30 years old?" Respondents were instructed to choose one of 16 occupational groupings, or a category labeled "NOT WORKING."

For analytic purposes, it is desirable to assign scores to these categories that will accurately represent their relative socioeconomic standing. The measures most commonly used for this purpose are the Duncan SEI scores (Blau and Duncan, 1967). These are based on prestige ratings of a set of occupations, regressed on measures of income and education for those occupations, and adjusted for differences in occupational age distributions.

Levinsohn et al. (1978) provide average Duncan SEI scores for the 14 categories used in the base year questionnaire (but not for the additional categories used in the follow-up questionnaires). These scores have a number of shortcomings, however:

1. Prestige ratings are available only for occupations in the paid civilian labor force. Those who aspire to careers in military service or as homemakers cannot be compared with other aspirants, nor can one quantify *changes* that involve these careers.

2. The average score for an occupational category depends—often quite heavily—on how individual occupations in that category are weighted. The scores provided by Levinsohn et al. are apparently unweighted averages of "representative" occupations in each category. The accuracy of the average scores naturally depends on whether these occupations have been well chosen and suitably weighted.

3. Professional categories are treated differently at baseline and at follow-up. The single baseline category was replaced by three new categories (including "school teacher") in the follow-up surveys.

These problems led us to develop the career aspiration index, based on canonical correlation between occupational aspirations (as measured in the first follow-up survey) and a set of background characteristics known to influence aspirations. Application of the canonical correlation technique to this problem seems quite natural, but the technique has not (so far as we know) previously been used to scale occupational *aspirations*—although it has been used to study the relationship between the occupational *attainments* of fathers and sons (Klatzky and Hodge, 1971).

Our career aspiration index, CARASP, provides scores for each of the 16 occupational categories measured in the follow-up surveys. Those scores are

given in Table 6 of the text, along with the average Duncan SEI scores for those categories as reported by Levinsohn et al. (1978).

Choosing index scores $a_1, a_2, \ldots, a_{16}$ for the 16 occupational groups amounts to specifying the value of a variable $Y = \Sigma\, a_i U_i$, where U_i is an indicator variable having the value 1 for respondents who chose the i^{th} occupational group. It was our intent to choose the coefficients a_i in such a way that the occupational index score Y would be well predicted by a linear combination of background characteristics known to be associated with occupational aspirations. In constructing the index, we used the NLS respondents' occupational choices in the first follow-up survey and the following background characteristics derived from the base year data:

SEIFAOCP	—	Duncan SEI score of father's occupation
EDPA	—	Father's educational attainment
EDMA	—	Mother's educational attainment
LNFAMINC	—	Logarithm of family income
GPA	—	High school grade point average
ABLE	—	Scholastic ability measure
RANK	—	Percentile rank in senior class

The choice of occupational index in Table 6 can be motivated by considering optimality criteria for specifying the variable $Y = \Sigma\, a_i U_i$ given a set of independent variables $X_1, X_2, \ldots, X_p$. A mathematically tractable criterion is the least-squares criterion, i.e., choose the coefficients a_i (and b_j) that minimize

$$SS_e = \sum_{k=1}^{n} \left(\sum_i a_i U_{ik} - b_0 - \sum_j b_j X_{jk}\right)^2,$$

where U_{ik} is 1 or 0 accordingly as the k^{th} respondent in a sample of size n chooses the i^{th} category or not, and X_{jk} is the value of X_j for that respondent.

In applying this criterion, one needs to impose some further constraints on the a_i's, such as requiring that the generated values Y_k of Y have mean 0 and variance 1. For a given choice of the coefficients a_i, it is well known that the minimum value of SS_e is

$$SS_e = n(1 - R^2)s_y^2$$

where s_y^2 is the sample variance of Y, and R is the multiple correlation between Y and $X_1, X_2, \ldots, X_p$. Thus, for a given value of s_y^2, the choice of the a_i's that minimizes SS_e is the choice that maximizes the multiple correlation between Y and $X_1, X_2, \ldots, X_p$. The resulting choice of Y is the first canonical variate of the indicator variables $U_1, U_2, \ldots, U_{16}$ relative to the background variables $X_1, X_2, \ldots, X_p$.

The occupational index scores a_i given in Table 6 are the coefficients of the first canonical variate, after rescaling the values so that the "Laborer" category

has a score of 10, and the "Professional I" category has a score of 80—approximating the average Duncan SEI score for occupations in that category. The sample means, variances, and correlation coefficients needed to carry out the canonical correlation calculations were estimated using all cases on the NLS file. Means and variances were calculated from all available observations; correlation coefficients were estimated using only the cases with complete observations on a given pair of variables.

The career aspiration index was used to create four measures of career aspiration, one for each wave of the survey. CARASP73, CARASP74, and CARASP76 are the coded responses to questions FQ19, SQ142, and TQ44 in the three follow-up surveys. The "NOT WORKING" responses were coded as missing values. The fourth measure, CARASP72, is the coded response to the base year question BQ25, which asked the respondent to select the occupational category "that goes with the best description of the kind of work you would like to do." Unlike the questions on the follow-up surveys, it does not ask the respondent what type of work he or she plans to be doing *at age 30*. The occupational categories are the same as on the follow-up surveys, except that the three professional categories are reduced to a single category in BQ25. With the exception of this category, the same codes were used in creating CARASP72 from the responses to BQ25. The "Professional" category was coded 70, which is the approximate average Duncan SEI score for occupations in that category.

In interpreting the scale values, it is important to remember that they are based on respondents' stated career goals at age *30*. For some categories (e.g., military service) the scale values might have been quite different had they been based on shorter-term career goals.

Appendix E

FACTOR ANALYTIC RESULTS FOR THE 1976 SEX-ROLE ATTITUDE MEASURES

The 1976 NLS follow-up questionnaire includes a series of ten items (TQ150A through TQ150J) designed to measure attitudes regarding sex roles:

A. A working mother of preschool children can be just as good a mother as the woman who doesn't work.
B. It is usually better for everyone involved if the man is the achiever outside the home and the woman takes care of the family.
C. Young men should be encouraged to take jobs that are usually filled by women (nursing, secretarial work, etc.).
D. Most women are just not interested in having big and important jobs.
E. Many qualified women can't get good jobs; men with the same skills have much less trouble.
F. Most women are happiest when they are making a home and caring for children.
G. High school counselors should urge young women to train for jobs which are now held mainly by men.
H. It is more important for a wife to help her husband than to have a career herself.
I. Schools teach women to want the less important jobs.
J. Men should be given the first chance at most jobs because they have the primary responsibility for providing for a family.

Responses to these items were scored on a four-point agreement scale, recoded for our analysis as follows: 1—"Disagree strongly," ..., 4—"Agree strongly."

To investigate the factor structure of these items, we performed a factor analysis based on data from 9,048 women and 8,293 men who had provided valid responses for all ten items. Factor analyses were performed separately for men and women, with results that were virtually identical. Because the same factor structure seems to describe the responses of both sexes, below we describe only the results for women.

Using the SAS factor analysis routine (Barr et al., 1976), we initially extracted the first two principal components from the interitem correlation matrix. Together, these accounted for 45 percent of the variance; each of the remaining components accounted for 9 percent or less. Next, we performed a VARIMAX orthogonal rotation of the first two principal components, producing two factors which account for the same variance as the first two principal components (i.e., span the same subspace of the ten-dimensional response

space), but which can be more readily related to the responses. Table E.1 summarizes the results of this analysis. The results indicate that the data are well summarized by the two factors produced by rotating the first two principal components. Coded responses to items B, D, F, H, and J have correlations exceeding 0.56 with the first factor and below 0.20 (in absolute value) with the second factor; items C, E, G, and I have correlations above 0.58 with the second factor and below 0.22 (in absolute value) with the first factor. Question A does not correlate well with either factor. The first group of items measures agreement with the traditional priority of family over work for women. The second group of items seems to measure agreement with the principle of equal employment opportunity for men and women. The factor analysis indicates that attitudes concerning these two groups of items, while negatively correlated, are not diametrically opposed; agreement with one group of items does not necessarily imply disagreement with the other. Question A, which might appear to be an "equal-employment" item, actually correlates poorly with both groups of items.

Table E.1

RESULTS OF FACTOR ANALYSIS OF SEX-ROLE ATTITUDES AMONG FEMALE NLS RESPONDENTS

Response variable	Standard deviation	Factor loadings: Principal components 1	Factor loadings: Principal components 2	Factor loadings: Rotated factors 1	Factor loadings: Rotated factors 2	Scoring coefficients: Principal components 1	Scoring coefficients: Principal components 2	Scoring coefficients: Rotated factors 1	Scoring coefficients: Rotated factors 2
TQ150A	0.882	-0.472	0.011	-0.406	0.242	-0.535	0.012	-0.147	0.093
TQ150B	0.811	0.746	0.193	0.744	-0.199	0.920	0.238	0.340	-0.007
TQ150C	0.681	-0.442	0.500	-0.139	0.652	-0.648	0.733	0.061	0.536
TQ150D	0.699	0.422	0.394	0.561	0.135	0.604	0.563	0.358	0.235
TQ150E	0.698	-0.331	0.488	-0.048	0.588	-0.475	0.699	0.098	0.488
TQ150F	0.720	0.675	0.308	0.739	-0.064	0.938	0.428	0.408	0.102
TQ150G	0.726	-0.542	0.522	-0.215	0.722	-0.747	0.719	0.028	0.543
TQ150H	0.807	0.731	0.229	0.749	-0.160	0.906	0.284	0.386	0.022
TQ150I	0.733	-0.298	0.570	0.020	0.643	-0.407	0.777	0.143	0.522
TQ150J	0.825	0.665	0.232	0.693	-0.125	0.806	0.282	0.322	0.037

On the basis of this analysis, we created two composite summary measures: a "traditional family priority" sex-role attitude measure consisting of the average response to items B, D, F, H, and J, and an "equal employment" sex-role attitude measure consisting of the average response to items C, E, G, and I. The correlation between these two summary measures is $-.13$ for men and $-.20$ for women.

Appendix F

MEANS OF BACKGROUND FACTORS BY POSTSECONDARY TRACK

Table F.1

MEANS OF BACKGROUND FACTORS BY POSTSECONDARY TRACK

A. Race/Ethnicity Classification

Postsecondary Track as of October 1976	Race/Ethnicity Classification				
	American Indian	Black	Hispanic	Oriental	Other Minority
	FEMALES				
Students					
4-Year	0.005	0.142	0.025	0.018	0.016
2-Year	0.009	0.125	0.053	0.019	0.020
Voc-Tech	0.007	0.168	0.036	0.005	0.015
Workers					
Full-time	0.013	0.120	0.042	0.004	0.035
Part-time	0.013	0.138	0.045	0.006	0.034
Military	0.000	0.304	0.043	0.000	0.000
Homemakers	0.015	0.166	0.051	0.005	0.036
Unemployed	0.015	0.278	0.067	0.002	0.033
Unclassified	0.015	0.210	0.070	0.015	0.030
All Subjects	0.011	0.155	0.044	0.011	0.026
	MALES				
Students					
4-Year	0.003	0.089	0.024	0.019	0.016
2-Year	0.011	0.086	0.064	0.029	0.021
Voc-Tech	0.008	0.143	0.031	0.012	0.024
Workers					
Full-time	0.017	0.125	0.045	0.004	0.036
Part-time	0.014	0.172	0.063	0.014	0.032
Military	0.010	0.188	0.058	0.008	0.019
Unemployed	0.019	0.231	0.069	0.002	0.027
Unclassified	0.019	0.149	0.057	0.010	0.037
All Subjects	0.012	0.124	0.045	0.013	0.027

Table F.1—continued

B. Region and Religion

Postsecondary Track as of October 1976	Region			Religion	
	Northeast	South	West	Catholic	Jewish
FEMALES					
Students					
4-Year	0.237	0.360	0.138	0.275	0.049
2-Year	0.208	0.315	0.298	0.312	0.029
Voc-Tech	0.233	0.370	0.105	0.305	0.004
Workers					
Full-time	0.225	0.375	0.123	0.334	0.009
Part-time	0.259	0.285	0.172	0.332	0.009
Military	0.217	0.435	0.130	0.227	0.000
Homemakers	0.115	0.462	0.178	0.198	0.000
Unemployed	0.180	0.430	0.169	0.250	0.006
Unclassified	0.198	0.328	0.231	0.295	0.017
All Subjects	0.217	0.364	0.165	0.296	0.022
MALES					
Students					
4-Year	0.247	0.344	0.132	0.306	0.057
2-Year	0.177	0.318	0.305	0.323	0.022
Voc-Tech	0.215	0.344	0.102	0.318	0.004
Workers					
Full-time	0.179	0.380	0.155	0.277	0.008
Part-time	0.207	0.294	0.220	0.318	0.010
Military	0.172	0.433	0.172	0.321	0.002
Unemployed	0.191	0.342	0.226	0.272	0.011
Unclassified	0.179	0.333	0.250	0.320	0.022
All Subjects	0.201	0.353	0.182	0.300	0.025

Table F.1—continued

C. Ability and High School Program

Postsecondary Track as of October 1976	Ability		High School Program	
	Scholastic Aptitude	Rank in Class	Academic Program	Voc-tech Program
FEMALES				
Students				
4-Year	223.7	75.5	0.739	0.051
2-Year	204.9	60.9	0.461	0.192
Voc-Tech	195.0	55.0	0.317	0.336
Workers				
Full-time	191.6	52.0	0.161	0.452
Part-time	191.8	49.0	0.179	0.424
Military	196.8	54.7	0.261	0.391
Homemakers	183.7	46.5	0.139	0.336
Unemployed	181.3	44.4	0.169	0.360
Unclassified	188.8	50.5	0.318	0.309
All Subjects	200.5	58.4	0.374	0.279
MALES				
Students				
4-Year	224.5	66.5	0.769	0.040
2-Year	204.8	47.8	0.508	0.128
Voc-Tech	194.2	43.8	0.314	0.320
Workers				
Full-time	186.1	35.0	0.191	0.325
Part-time	185.4	34.6	0.211	0.312
Military	189.8	38.6	0.286	0.247
Unemployed	185.3	35.4	0.197	0.307
Unclassified	191.3	41.8	0.357	0.216
All Subjects	200.0	46.7	0.418	0.205

Table F.1—continued

D. Socioeconomic Status

Postsecondary Track as of October 1976	Socioeconomic Status				
	Father's Education	Mother's Education	Father's Occupation	Mother's Professional Status	Mother's Homemaker Status
FEMALES					
Students					
4-Year	13.7	13.1	49.2	0.177	0.500
2-Year	12.6	12.3	43.4	0.120	0.527
Voc-Tech	11.7	11.9	35.9	0.083	0.570
Workers					
Full-time	11.6	11.5	36.0	0.063	0.595
Part-time	11.8	11.7	37.0	0.068	0.572
Military	11.5	11.6	31.7	0.100	0.700
Homemakers	11.1	11.2	31.8	0.046	0.611
Unemployed	11.4	11.5	33.6	0.068	0.632
Unclassified	12.0	12.0	36.7	0.107	0.570
All Subjects	12.3	12.1	40.0	0.108	0.558
MALES					
Students					
4-Year	13.7	13.1	50.5	0.149	0.542
2-Year	12.8	12.4	43.4	0.121	0.531
Voc-Tech	11.8	11.9	36.6	0.106	0.560
Workers					
Full-time	11.6	11.7	34.8	0.066	0.590
Part-time	11.7	11.7	35.7	0.082	0.565
Military	11.9	11.7	37.0	0.070	0.550
Unemployed	11.5	11.5	34.5	0.087	0.550
Unclassified	12.5	12.3	40.1	0.128	0.544
All Subjects	12.5	12.2	40.9	0.109	0.557

Table F.1—continued

E. Background Factors

Postsecondary Track as of October 1976	Other Background Factors		
	Number of Siblings	Siblings in College	Friends' College Plans
FEMALES			
Students			
4-Year	2.50	0.499	0.843
2-Year	2.70	0.415	0.765
Voc-Tech	2.78	0.251	0.487
Workers			
Full-time	3.12	0.246	0.392
Part-time	3.05	0.225	0.398
Military	3.79	0.429	0.500
Homemakers	3.21	0.204	0.335
Unemployed	3.33	0.276	0.375
Unclassified	3.04	0.352	0.531
All Subjects	2.88	0.343	0.570
MALES			
Students			
4-Year	2.42	0.486	0.846
2-Year	2.56	0.413	0.722
Voc-Tech	2.81	0.333	0.434
Workers			
Full-time	3.07	0.255	0.322
Part-time	3.21	0.294	0.360
Military	3.37	0.327	0.396
Unemployed	3.10	0.281	0.330
Unclassified	2.87	0.350	0.502
All Subjects	2.80	0.359	0.548

Appendix G

RESULTS OF REGRESSION ANALYSES FOR FULL-TIME WORKERS, 1972-1976

This appendix presents the results of the regression analyses used in estimating the adjusted means and intergroup differences reported in a number of tables in the text. The regressions were carried out separately by sex, using data on those NLS participants who were classified as full-time civilian workers in October 1972.

Table G.1

Regression Results for the Self-Esteem Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	3.40	23.8	3.75	35.6	3.72	32.6	3.58	30.4
Race/Ethnicity								
Black	0.205	4.2	0.075	2.1	0.088	2.3	0.063	1.6
Hispanic	0.095	1.3	0.090	1.6	0.088	1.5	0.051	0.8
Indian	-0.054	-0.4	-0.052	-0.6	-0.149	-1.5	0.051	0.5
Oriental	-0.036	-0.2	-0.007	-0.0	-0.230	-1.3	0.169	1.0
Other minority	0.002	0.0	-0.025	-0.4	0.035	0.6	-0.086	-1.3
Region								
Northeast	-0.038	-0.9	-0.012	-0.4	-0.034	-1.1	-0.005	-0.2
South	0.099	2.7	0.033	1.2	0.010	0.3	0.025	0.8
West	0.018	0.4	-0.035	-1.0	-0.044	-1.1	0.038	0.9
High school measures								
Ability	0.0003	0.4	0.0006	1.3	0.0004	0.8	0.0013	2.4
Percentile rank in class	0.0021	3.3	-0.0000	-0.1	-0.0001	-0.2	-0.0003	-0.5
Academic program	-0.033	-0.7	0.002	0.1	0.025	0.7	0.010	0.3
Vocational-technical program	0.029	0.9	-0.010	-0.4	-0.006	-0.2	0.014	0.6
Family background								
Parents' education	0.0185	2.0	0.0157	2.3	0.0248	3.3	0.0248	3.2
Father's occupation (SEI)	-0.0003	-0.4	0.0003	0.6	0.0013	2.1	0.0012	1.9
Mother's professional status	0.025	0.4	0.058	1.3	0.031	0.7	0.081	1.6
R^2	0.029		0.009		0.017		0.019	
S	0.656		0.550		0.576		0.593	
F	4.3		1.7		3.0		3.3	
N	2149		2788		2596		2601	
MALES								
Constant	3.89	31.4	3.78	41.6	3.79	37.2	3.79	39.5
Race/Ethnicity								
Black	0.085	2.0	0.008	0.3	0.025	0.7	0.002	0.1
Hispanic	0.021	0.3	-0.092	-2.0	0.058	1.1	-0.008	-0.2
Indian	0.029	0.3	0.077	1.1	0.033	0.4	-0.045	-0.6
Oriental	-0.416	-2.0	0.104	0.7	-0.439	-2.6	-0.449	-2.8
Other minority	-0.030	-0.4	-0.042	-0.8	-0.018	-0.3	-0.070	-1.3
Region								
Northeast	0.039	1.0	-0.019	-0.7	-0.038	-1.2	-0.045	-1.5
South	0.089	2.8	0.015	0.6	0.044	1.6	0.010	0.4
West	0.161	4.0	0.021	0.7	0.021	0.6	0.047	1.5
High school measures								
Ability	-0.0006	-1.1	0.0012	3.0	0.0014	3.3	0.0010	2.5
Percentile rank in class	0.0018	3.0	0.0002	0.5	0.0005	1.1	0.0001	0.2
Academic program	0.041	1.1	0.067	2.6	0.055	1.9	0.014	0.5
Vocational-technical program	0.027	0.9	0.046	2.1	0.084	3.5	0.054	2.4
Family background								
Parents' education	0.0005	0.1	0.0092	1.5	0.0107	1.6	0.0285	4.4
Father's occupation (SEI)	-0.0009	-1.3	-0.0003	-0.5	-0.0005	-0.9	-0.0009	-1.7
Mother's professional status	-0.027	-0.5	-0.042	-1.1	-0.064	-1.5	-0.080	-2.0
R^2	0.019		0.013		0.017		0.020	
S	0.629		0.518		0.557		0.530	
F	3.2		2.8		3.4		4.0	
N	2519		3177		2937		2980	

Table G.2

Regression Results for the Locus of Control Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	2.01	14.0	2.08	17.3	2.36	18.1	2.30	17.0
Race/Ethnicity								
Black	-0.106	-2.2	-0.281	-6.9	-0.272	-6.2	-0.177	-3.9
Hispanic	-0.113	-1.5	-0.002	-0.0	-0.034	-0.5	-0.054	-0.8
Indian	-0.251	-2.0	0.060	0.6	0.164	1.4	0.112	0.9
Oriental	0.028	0.1	0.234	1.3	-0.128	-0.7	0.237	1.2
Other minority	-0.120	-1.5	-0.049	-0.7	-0.041	-0.6	-0.066	-0.9
Region								
Northeast	-0.003	-0.1	-0.048	-1.4	-0.039	-1.1	-0.004	-0.1
South	0.049	1.3	0.033	1.1	0.036	1.1	0.001	0.0
West	0.072	1.4	0.008	0.2	0.032	0.7	0.169	3.6
High school measures								
Ability	0.0071	11.1	0.0066	12.3	0.0056	9.6	0.0059	9.8
Percentile rank in class	0.0030	4.7	0.0013	2.4	0.0027	4.6	0.0021	3.4
Academic program	0.005	0.1	-0.019	-0.5	-0.030	-0.7	-0.012	-0.3
Vocational-technical program	-0.038	-1.2	0.008	0.3	-0.032	-1.1	-0.030	-1.0
Family background								
Parents' education	0.0132	1.4	0.0315	4.0	0.0164	1.9	0.0164	1.9
Father's occupation (SEI)	0.0007	1.0	0.0008	1.3	0.0019	2.8	0.0031	4.5
Mother's professional status	-0.086	-1.4	-0.079	-1.6	0.052	1.0	-0.092	-1.6
R^2	0.161		0.159		0.139		0.134	
S	0.658		0.628		0.657		0.684	
F	27.3		35.1		27.6		26.6	
N	2151		2788		2591		2601	
MALES								
Constant	2.07	14.6	2.51	21.9	2.33	18.0	2.26	18.1
Race/Ethnicity								
Black	-0.091	-1.9	-0.238	-6.0	-0.241	-5.4	-0.274	-6.4
Hispanic	-0.089	-1.2	-0.157	-2.6	-0.179	-2.7	-0.175	-2.7
Indian	-0.094	-0.9	-0.228	-2.5	-0.232	-2.3	-0.256	-2.6
Oriental	0.082	0.3	0.183	1.0	0.091	0.4	0.182	0.9
Other minority	-0.135	-1.7	-0.105	-1.7	-0.234	-3.3	-0.109	-1.6
Region								
Northeast	-0.064	-1.5	-0.046	-1.3	-0.082	-2.0	-0.029	-0.7
South	-0.087	-2.4	-0.073	-2.4	-0.074	-2.2	-0.041	-1.3
West	-0.016	-0.3	0.029	0.8	0.017	0.4	0.038	0.9
High school measures								
Ability	0.0072	12.0	0.0051	10.6	0.0062	11.4	0.0062	11.7
Percentile rank in class	0.0023	3.4	0.0012	2.2	0.0008	1.3	0.0005	0.9
Academic program	0.012	0.3	0.064	2.0	0.068	1.8	0.052	1.4
Vocational-technical program	-0.018	-0.6	0.054	2.0	0.039	1.3	0.052	1.8
Family background								
Parents' education	0.0005	0.1	0.0162	2.1	0.0130	1.5	0.0337	4.0
Father's occupation (SEI)	0.0008	1.1	0.0003	0.4	0.0010	1.4	-0.0011	-1.6
Mother's professional status	-0.009	-0.2	-0.077	-1.6	0.035	0.6	-0.040	-0.8
R^2	0.134		0.123		0.137		0.140	
S	0.718		0.653		0.709		0.689	
F	25.7		29.6		30.7		32.0	
N	2517		3172		2932		2978	

Table G.3

Regression Results for the Work Orientation Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	2.82	38.4	2.61	35.1	2.67	34.6	2.39	29.1
Race/Ethnicity								
Black	0.117	4.8	0.160	6.4	0.155	6.0	0.189	6.8
Hispanic	0.069	1.8	0.087	2.2	0.071	1.8	0.026	0.6
Indian	0.013	0.2	-0.040	-0.6	-0.049	-0.7	-0.069	-1.0
Oriental	-0.204	-1.9	0.071	0.6	-0.068	-0.6	-0.047	-0.4
Other minority	-0.100	-2.5	-0.037	-0.9	-0.029	-0.7	0.033	0.7
Region								
Northeast	0.019	0.9	0.010	0.5	0.012	0.6	0.000	0.0
South	0.042	2.3	0.073	3.8	0.068	3.5	0.048	2.3
West	0.027	1.1	0.048	1.9	0.041	1.5	0.039	1.4
High school measures								
Ability	-0.0021	-6.5	-0.0022	-6.5	-0.0025	-7.2	-0.0018	-4.8
Percentile rank in class	0.0007	2.2	-0.0000	-0.0	-0.0000	-0.1	0.0001	0.1
Academic program	0.026	1.1	0.058	2.5	0.051	2.1	0.069	2.7
Vocational-technical program	0.059	3.6	0.031	1.9	0.045	2.6	0.059	3.2
Family background								
Parents' education	-0.0026	-0.5	0.0046	0.9	0.0066	1.3	0.0129	2.4
Father's occupation (SEI)	-0.0000	-0.1	0.0003	0.8	0.0005	1.2	0.0006	1.3
Mother's professional status	0.017	0.6	-0.030	-1.0	-0.010	-0.3	-0.019	-0.5
R^2	0.073		0.066		0.073		0.052	
S	0.336		0.389		0.388		0.414	
F	11.2		13.2		13.5		9.5	
N	2151		2791		2587		2607	
MALES								
Constant	3.03	45.7	2.85	49.0	3.08	50.0	2.77	45.7
Race/Ethnicity								
Black	0.008	0.4	0.063	3.1	0.064	3.0	0.043	2.1
Hispanic	-0.070	-2.0	0.007	0.2	-0.002	-0.1	0.004	0.1
Indian	-0.018	-0.3	-0.018	-0.4	-0.018	-0.4	-0.002	-0.0
Oriental	-0.322	-2.9	-0.024	-0.2	-0.021	-0.2	0.100	1.0
Other minority	-0.083	-2.3	-0.066	-2.1	-0.006	-0.2	0.017	0.5
Region								
Northeast	0.001	0.1	0.010	0.6	-0.031	-1.6	0.003	0.2
South	0.020	1.2	0.020	1.3	0.008	0.5	0.035	2.2
West	0.006	0.3	0.007	0.4	0.004	0.2	-0.016	-0.8
High school measures								
Ability	-0.0017	-6.0	-0.0015	-6.0	-0.0020	-7.5	-0.0017	-6.5
Percentile rank in class	-0.0002	-0.6	0.0003	1.1	-0.0003	-1.0	0.0003	1.2
Academic program	0.033	1.8	-0.025	-1.5	0.010	0.6	-0.000	-0.0
Vocational-technical program	0.007	0.5	-0.001	-0.1	0.011	0.8	-0.004	-0.2
Family background								
Parents' education	-0.0076	-1.7	-0.0045	-1.2	-0.0161	-3.9	0.0048	1.2
Father's occupation (SEI)	-0.0003	-0.7	-0.0000	-0.0	0.0006	1.7	-0.0002	-0.6
Mother's professional status	-0.075	-2.7	-0.014	-0.6	0.040	1.6	0.002	0.1
R^2	0.041		0.035		0.059		0.032	
S	0.336		0.332		0.337		0.336	
F	7.2		7.6		12.2		6.6	
N	2525		3185		2933		2988	

Table G.4

Regression Results for the Family Orientation Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	1.22	13.9	1.10	16.3	1.24	17.6	1.32	19.0
Race/Ethnicity								
Black	-0.107	-3.6	-0.085	-3.8	-0.154	-6.5	-0.183	-7.9
Hispanic	-0.038	-0.8	0.033	0.9	0.028	0.8	0.006	0.2
Indian	-0.041	-0.5	0.021	0.4	0.001	0.0	0.017	0.3
Oriental	-0.170	-1.3	-0.336	-3.3	-0.311	-2.9	-0.194	-1.9
Other minority	-0.033	-0.7	-0.036	-1.0	-0.051	-1.3	-0.029	-0.8
Region								
Northeast	0.077	3.1	0.011	0.6	0.030	1.5	-0.004	-0.2
South	0.111	5.0	0.079	4.6	0.107	6.0	0.033	2.0
West	0.030	1.0	0.011	0.5	0.019	0.8	-0.024	-1.0
High school measures								
Ability	-0.0009	-2.4	-0.0003	-1.1	-0.0007	-2.3	-0.0012	-4.0
Percentile rank in class	0.0014	3.5	0.0003	1.1	0.0006	1.8	0.0014	4.5
Academic program	-0.012	-0.4	0.007	0.3	-0.008	-0.4	0.008	0.4
Vocational-technical program	0.056	2.9	0.066	4.4	0.027	1.7	0.035	2.2
Family background								
Parents' education	-0.0192	-3.3	-0.0044	-1.0	-0.0041	-0.9	-0.0059	-1.3
Father's occupation (SEI)	-0.0001	-0.2	0.0004	1.0	-0.0004	-1.0	0.0005	1.3
Mother's professional status	-0.012	-0.3	-0.064	-2.3	-0.033	-1.1	-0.063	-2.1
R^2	0.042		0.031		0.040		0.041	
S	0.400		0.350		0.353		0.350	
F	6.2		5.8		7.0		7.2	
N	2131		2748		2563		2572	
MALES								
Constant	1.16	14.4	1.29	19.9	1.28	19.4	1.23	20.0
Race/Ethnicity								
Black	-0.055	-2.0	-0.150	-6.7	-0.115	-5.1	-0.137	-6.4
Hispanic	0.040	1.0	-0.065	-1.9	-0.040	-1.2	-0.086	-2.7
Indian	0.010	0.2	0.013	0.3	-0.062	-1.2	-0.092	-1.9
Oriental	0.008	0.1	-0.032	-0.3	-0.162	-1.5	-0.103	-1.0
Other minority	-0.016	-0.4	-0.049	-1.4	-0.009	-0.2	-0.064	-1.9
Region								
Northeast	0.052	2.1	0.011	0.6	0.009	0.4	0.019	1.0
South	0.110	5.3	0.066	4.0	0.057	3.3	0.063	4.0
West	0.027	1.0	0.006	0.3	-0.012	-0.5	0.027	1.4
High school measures								
Ability	-0.0008	-2.3	-0.0012	-4.4	-0.0007	-2.7	-0.0007	-2.8
Percentile rank in class	0.0010	2.5	0.0009	2.8	0.0008	2.6	0.0012	4.0
Academic program	-0.006	-0.3	0.007	0.4	0.018	1.0	-0.004	-0.2
Vocational-technical program	-0.026	-1.4	0.005	0.3	0.010	0.7	-0.011	-0.8
Family background								
Parents' education	-0.0148	-2.7	-0.0057	-1.3	-0.0098	-2.2	-0.0066	-1.6
Father's occupation (SEI)	-0.0000	-0.0	-0.0005	-1.4	-0.0008	-2.3	-0.0006	-1.7
Mother's professional status	-0.028	-0.8	-0.067	-2.4	-0.101	-3.6	-0.023	-0.9
R^2	0.026		0.028		0.030		0.026	
S	0.407		0.366		0.359		0.339	
F	4.3		5.9		5.9		5.3	
N	2466		3130		2904		2950	

Table G.5

Regression Results for the Community Orientation Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	2.40	27.3	2.41	31.3	2.33	29.4	2.46	31.5
Race/Ethnicity								
Black	0.202	6.8	0.216	8.3	0.142	5.3	0.172	6.5
Hispanic	0.164	3.6	0.100	2.5	0.054	1.3	0.078	1.9
Indian	0.140	1.8	0.055	0.8	0.047	0.7	-0.009	-0.1
Oriental	0.118	0.9	-0.184	-1.6	-0.169	-1.4	0.023	0.2
Other minority	-0.027	-0.5	-0.046	-1.1	0.010	0.2	-0.048	-1.1
Region								
Northeast	-0.039	-1.6	-0.012	-0.5	-0.006	-0.3	0.001	0.0
South	0.056	2.5	0.122	6.2	0.114	5.6	0.078	3.9
West	-0.048	-1.5	0.000	0.0	-0.039	-1.4	-0.027	-1.0
High school measures								
Ability	-0.0009	-2.3	-0.0013	-3.8	-0.0020	-5.5	-0.0028	-8.0
Percentile rank in class	0.0006	1.6	-0.0006	-1.7	-0.0004	-1.1	-0.0001	-0.3
Academic program	0.028	1.0	-0.000	-0.0	0.028	1.1	0.027	1.1
Vocational-technical program	-0.001	-0.0	-0.024	-1.4	0.004	0.2	0.002	0.1
Family background								
Parents' education	-0.0133	-2.3	-0.0137	-2.7	-0.0012	-0.2	-0.0030	-0.6
Father's occupation (SEI)	-0.0009	-1.9	0.0001	0.2	-0.0000	-0.1	0.0004	1.0
Mother's professional status	0.015	0.4	0.043	1.3	-0.065	-1.9	-0.010	-0.3
R^2	0.074		0.098		0.079		0.095	
S	0.404		0.403		0.399		0.395	
F	11.3		20.1		14.7		18.1	
N	2150		2789		2585		2606	
MALES								
Constant	2.70	31.7	2.51	32.3	2.39	30.7	2.37	30.3
Race/Ethnicity								
Black	0.206	7.0	0.213	8.0	0.244	9.1	0.247	9.2
Hispanic	0.126	2.9	0.153	3.8	0.142	3.5	0.185	4.6
Indian	0.165	2.5	0.033	0.5	0.139	2.3	0.089	1.5
Oriental	-0.062	-0.4	-0.023	-0.2	-0.237	-1.8	-0.116	-0.9
Other minority	-0.046	-1.0	-0.036	-0.8	-0.030	-0.7	0.045	1.1
Region								
Northeast	-0.021	-0.8	-0.033	-1.4	-0.043	-1.8	-0.015	-0.6
South	0.117	5.3	0.106	5.3	0.078	3.9	0.111	5.4
West	-0.045	-1.6	-0.014	-0.5	-0.039	-1.5	-0.047	-1.8
High school measures								
Ability	-0.0022	-6.1	-0.0022	-6.7	-0.0019	-5.8	-0.0023	-7.1
Percentile rank in class	0.0001	0.4	0.0003	0.9	0.0004	0.9	0.0004	1.1
Academic program	0.072	2.9	0.039	1.8	0.043	1.9	0.051	2.3
Vocational-technical program	-0.021	-1.0	-0.005	-0.3	0.001	0.0	0.007	0.4
Family background								
Parents' education	-0.0247	-4.3	-0.0105	-2.0	-0.0062	-1.2	-0.0039	-0.7
Father's occupation (SEI)	0.0014	2.9	0.0004	1.0	-0.0002	-0.4	0.0005	1.2
Mother's professional status	-0.012	-0.3	-0.024	-0.7	-0.100	-3.1	-0.033	-1.0
R^2	0.117		0.097		0.106		0.116	
S	0.432		0.442		0.426		0.432	
F	22.1		22.7		23.0		26.0	
N	2516		3177		2927		2985	

Table G.6

Regression Results for Expected Years of Educational Attainment: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	11.1	28.8	10.5	39.8	10.0	33.6	9.7	27.8
Race/Ethnicity								
Black	0.524	4.2	1.026	12.0	0.904	9.4	1.235	11.0
Hispanic	0.315	1.6	0.314	2.4	0.448	3.0	0.660	3.8
Indian	-0.461	-1.5	0.166	0.8	0.211	0.9	0.022	0.1
Oriental	-0.519	-1.0	-0.270	-0.7	0.403	1.0	-0.018	-0.0
Other minority	0.196	1.0	0.314	2.3	0.489	3.2	0.576	3.2
Region								
Northeast	-0.280	-2.7	-0.076	-1.1	-0.093	-1.2	-0.095	-1.0
South	0.189	2.1	0.047	0.7	0.038	0.5	0.013	0.2
West	0.470	3.8	0.365	4.3	0.284	2.9	0.305	2.7
High school measures								
Ability	0.0046	2.9	0.0066	6.0	0.0075	6.0	0.0098	6.8
Percentile rank in class	0.0009	0.5	-0.0033	-2.9	-0.0022	-1.7	-0.0020	-1.4
Academic program	0.959	8.6	0.514	6.7	0.496	5.7	0.694	6.8
Vocational-technical program	-0.250	-3.2	-0.113	-2.1	-0.116	-1.9	-0.051	-0.7
Family background								
Father's education	0.037	1.9	0.044	3.2	0.057	3.7	0.061	3.4
Mother's education	0.011	0.4	0.024	1.4	0.066	3.4	0.057	2.5
Father's occupation (SEI)	0.0050	2.7	0.0023	1.8	0.0005	0.3	0.0016	0.9
Mother's professional status	-0.042	-0.3	0.251	2.4	0.050	0.4	0 068	0.5
Number of siblings	-0.0039	-0.2	0.0026	0.2	-0.0258	-1.4	-0.0186	-0.8
Number of siblings in college	0.149	2.2	0.103	2.2	0.157	3.0	0 199	3.2
Friends plan college	0.515	6.8	0.294	5.6	0.240	4.1	0 264	3.8
Catholic	-0.168	-2.0	-0.023	-0.4	-0.061	-0.9	0 018	0.2
Jewish	0.618	1.6	0.718	2.8	0.791	2.7	0.713	2.1
R^2	0.228		0.160		0.144		0.159	
S	1.372		1.254		1.366		1.566	
F	21.1		24.3		20.1		21.4	
N	1524		2694		2523		2411	
MALES								
Constant	9.5	24.3	9.6	31.5	9.4	29.1	9.5	27.6
Race/Ethnicity								
Black	0.697	5.5	0.859	8.6	0.923	8.8	0.953	8.5
Hispanic	0.841	4.4	0.448	3.0	0.540	3.4	0.965	5.7
Indian	0.280	1.0	0.203	0.9	0.212	0.9	0.043	0.2
Oriental	-0.124	-0.2	-0.292	-0.6	0.170	0.3	0.202	0.4
Other minority	0.137	0.7	-0.040	-0.3	0.203	1.2	0.097	0.6
Region								
Northeast	-0.041	-0.4	-0.154	-1.7	-0.074	-0.8	0.017	0.2
South	0.283	3.0	0.041	0.6	0.159	2.0	0.123	1.5
West	0.416	3.5	0.179	1.9	0.247	2.5	0.114	1.1
High school measures								
Ability	0.0094	6.2	0.0075	6.2	0.0090	7.2	0.0110	8.1
Percentile rank in class	0.0050	2.9	0.0045	3.3	0.0041	2.9	0.0021	1.4
Academic program	1.045	10.0	0.539	6.6	0.552	6.4	0.435	4.7
Vocational-technical program	0.035	0.4	0.041	0.6	-0.066	-0.9	0.012	0.2
Family background								
Father's education	0.056	2.8	0.127	8.1	0.101	6.1	0.134	7.6
Mother's education	0.043	1.7	0.023	1.2	0.041	2.0	-0.008	-0.4
Father's occupation (SEI)	0.0040	2.0	0.0050	3.2	0.0052	3.1	0.0051	2.9
Mother's professional status	0.321	2.1	0.106	0.9	0.245	1.9	0.097	0.7
Number of siblings	-0.0177	-0.7	-0.0402	-2.1	-0.0348	-1.7	-0.0351	-1.6
Number of siblings in college	0.340	5.1	0.146	2.8	0.164	3.0	0.266	4.5
Friends plan college	0.543	6.5	0.269	4.1	0.322	4.7	0.331	4.5
Catholic	-0.072	-0.8	0.164	2.3	0.144	1.9	0.003	0.0
Jewish	1.112	2.7	0.253	0.8	0.328	1.0	-0.098	-0.3
R^2	0.282		0.164		0.178		0.160	
S	1.451		1.578		1.590		1.692	
F	29.6		28.8		29.0		25.3	
N	1608		3111		2834		2809	

Table G.7

Regression Results for the Career Aspiration Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	26.1	6.5	23.2	9.0	20.2	7.5	16.3	5.9
Race/Ethnicity								
Black	2.601	2.1	5.201	6.4	5.404	6.4	6.106	7.0
Hispanic	2.874	1.5	2.383	1.9	0.965	0.8	1.468	1.1
Indian	1.336	0.4	-1.107	-0.5	1.933	0.9	4.790	2.2
Oriental	-7.742	-1.4	2.951	0.8	6.015	1.6	-4.287	-1.1
Other minority	-2.113	-1.0	3.288	2.5	2.537	1.9	4.071	2.9
Region								
Northeast	-0.344	-0.3	-0.334	-0.5	-0.264	-0.4	0.506	0.7
South	1.821	2.0	-0.406	-0.7	-0.406	-0.7	0.694	1.1
West	4.834	3.8	2.358	2.9	1.361	1.6	1.807	2.1
High school measures								
Ability	0.046	2.8	0.057	5.4	0.065	5.9	0.081	7.2
Percentile rank in class	-0.0122	-0.7	-0.0164	-1.5	-0.0319	-2.9	-0.0164	-1.4
Academic program	7.817	6.9	3.313	4.5	4.444	5.9	4.704	6.0
Vocational-technical program	-4.710	-5.8	-1.477	-2.8	-0.568	-1.1	-0.332	-0.6
Family background								
Father's education	0.69	3.4	0.47	3.6	0.38	2.8	0.38	2.8
Mother's education	-0.07	-0.3	-0.00	-0.0	0.28	1.6	0.20	1.1
Father's occupation (SEI)	0.0139	0.7	0.0290	2.3	0.0168	1.3	0.0171	1.3
Mother's professional status	1.229	0.8	2.681	2.6	1.577	1.5	0.251	0.2
Mother's homemaker status	-0.517	-0.6	-1.683	-3.3	-1.122	-2.1	0.125	0.2
Number of siblings	-0.020	-0.1	0.074	0.5	-0.055	-0.3	-0.184	-1.1
R^2	0.133		0.090		0.088		0.088	
S	14.623		11.829		11.961		12.407	
F	13.8		14.2		13.1		13.5	
N	1634		2603		2467		2515	
MALES								
Constant	0.9	0.2	-2.6	-0.8	-6.1	-1.8	-5.0	-1.5
Race/Ethnicity								
Black	8.141	5.5	5.786	5.5	8.417	7.6	8.884	8.4
Hispanic	7.541	3.4	5.342	3.4	7.910	4.8	6.716	4.3
Indian	4.345	1.3	0.265	0.1	0.658	0.3	-1.638	-0.7
Oriental	2.102	0.3	4.976	1.0	9.076	1.7	-1.418	-0.3
Other minority	2.384	1.0	0.368	0.2	2.251	1.3	4.318	2.6
Region								
Northeast	0.442	0.3	-0.140	-0.2	-0.933	-1.0	-0.979	-1.0
South	3.102	2.8	2.019	2.6	1.226	1.5	0.055	0.1
West	2.289	1.6	2.726	2.8	1.197	1.2	-0.858	-0.9
High school measures								
Ability	0.119	6.6	0.089	7.0	0.108	8.1	0.123	9.7
Percentile rank in class	0.0244	1.2	0.0453	3.2	0.0426	2.8	0.0374	2.6
Academic program	6.084	5.0	6.321	7.4	6.037	6.7	3.940	4.6
Vocational-technical program	-3.441	-3.5	-0.861	-1.2	-0.773	-1.1	-0.928	-1.3
Family background								
Father's education	0.37	1.6	0.74	4.5	1.07	6.2	0.86	5.1
Mother's education	0.28	0.9	0.57	2.7	0.23	1.0	0.24	1.1
Father's occupation (SEI)	0.0730	3.1	0.0583	3.5	0.0707	4.0	0.0610	3.6
Mother's professional status	4.957	2.6	0.556	0.4	2.313	1.7	0.535	0.4
Mother's homemaker status	1.864	2.0	0.288	0.4	-0.555	-0.8	-0.175	-0.3
Number of siblings	-0.984	-3.4	-0.634	-3.1	-0.362	-1.7	-0.462	-2.2
R^2	0.142		0.131		0.150		0.131	
S	17.406		16.669		16.800		16.415	
F	14.9		25.4		27.4		24.2	
N	1648		3050		2816		2917	

Table G.8

Regression Results for the Professional Aspiration Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
FEMALES								
Constant	-4.02	-1.4	-5.23	-3.3	-6.10	-4.5	-5.78	-4.3
Race/Ethnicity								
Black	0.419	1.9	1.350	6.9	1.409	7.0	1.323	6.7
Hispanic	0.384	1.1	0.441	1.5	0.162	0.5	0.312	1.1
Indian	0.104	0.2	0.231	0.5	0.338	0.7	0.877	1.8
Oriental	-1.393	-1.4	0.968	1.1	1.858	2.1	-0.842	-1.0
Other minority	-0.253	-0.7	0.583	1.9	0.504	1.6	0.834	2.7
Region								
Northeast	-0.085	-0.5	-0.006	-0.0	0.001	0.0	0.032	0.2
South	0.264	1.6	0.019	0.1	0.006	0.0	0.058	0.4
West	0.799	3.5	0.597	3.0	0.458	2.2	0.137	0.7
High school measures								
Ability	0.0088	3.0	0.0123	4.8	0.0155	5.9	0.0143	5.6
Percentile rank in class	-0.0055	-1.9	-0.0047	-1.8	-0.0098	-3.7	-0.0049	-1.9
Academic program	1.388	6.9	0.694	4.0	0.899	5.0	0.859	4.9
Vocational-technical program	-0.991	-6.9	-0.493	-3.9	-0.431	-3.3	-0.249	-2.0
Family background								
Father's education	0.119	3.3	0.105	3.3	0.072	2.2	0.063	2.0
Mother's education	-0.030	-0.7	-0.021	-0.5	0.055	1.3	0.041	1.0
Father's occupation (SEI)	0.0026	0.8	0.0050	1.7	0.0044	1.4	0.0026	0.9
Mother's professional status	0.099	0.3	0.731	2.9	0.426	1.6	-0.021	-0.1
Mother's homemaker status	-0.150	-1.0	-0.317	-2.6	-0.284	-2.2	-0.104	-0.8
Number of siblings	0.031	0.7	0.021	0.5	0.014	0.3	-0.010	-0.3
R^2	0.141		0.080		0.090		0.066	
S	0.390		0.354		0.352		0.359	
F	14.7		12.5		13.4		9.8	
N	1634		2603		2467		2515	
MALES								
Constant	-7.28	-5.3	-7.45	-7.0	-7.18	-6.5	-8.49	-8.0
Race/Ethnicity								
Black	1.032	4.2	0.499	2.7	1.244	6.5	1.450	7.2
Hispanic	1.089	3.0	0.811	2.9	1.106	3.9	1.363	4.6
Indian	0.377	0.7	-0.089	-0.2	-0.358	-0.8	0.228	0.5
Oriental	-0.701	-0.6	0.824	0.9	1.661	1.8	0.325	0.3
Other minority	0.365	1.0	0.194	0.7	0.438	1.5	0.587	1.9
Region								
Northeast	-0.140	-0.7	-0.028	-0.2	-0.208	-1.2	-0.067	-0.4
South	0.241	1.3	0.105	0.8	0.015	0.1	-0.031	-0.2
West	0.254	1.1	0.389	2.2	0.040	0.2	-0.228	-1.2
High school measures								
Ability	0.0184	6.3	0.0146	6.5	0.0159	6.9	0.0227	9.4
Percentile rank in class	0.0013	0.4	0.0054	2.1	0.0058	2.2	0.0037	1.4
Academic program	1.037	5.2	1.057	6.9	0.893	5.7	0.574	3.5
Vocational-technical program	-0.537	-3.3	-0.193	-1.5	-0.238	-1.9	-0.301	-2.3
Family background								
Father's education	0.054	1.4	0.127	4.3	0.152	5.0	0.143	4.6
Mother's education	0.075	1.5	0.037	1.0	-0.002	-0.1	-0.003	-0.1
Father's occupation (SEI)	0.0078	2.0	0.0046	1.5	0.0050	1.7	0.0037	1.2
Mother's professional status	0.893	2.9	0.549	2.3	0.654	2.7	0.719	2.8
Mother's homemaker status	0.255	1.7	0.194	1.6	-0.065	-0.5	0.040	0.3
Number of siblings	-0.128	-2.7	-0.019	-0.5	-0.059	-1.6	-0.052	-1.3
R^2	0.127		0.096		0.105		0.099	
S	0.356		0.339		0.345		0.324	
F	13.1		18.0		18.3		17.6	
N	1648		3050		2816		2917	

Table G.9

Regression Results for the Homemaker Aspiration Measure: Full-Time Civilian Workers in October 1972

Variable	1972 b	1972 t	1973 b	1973 t	1974 b	1974 t	1976 b	1976 t
				FEMALES				
Constant	-2.55	1.2	0.84	6.7	1.21	7.3	1.76	8.5
Race/Ethnicity								
Black	-0.438	-1.2	-1.280	-8.7	-1.162	-7.8	-1.157	-7.6
Hispanic	-0.694	-1.3	-0.737	-3.3	-0.567	-2.5	-0.725	-3.1
Indian	0.479	0.5	-0.485	-1.3	0.499	1.3	0.315	0.8
Oriental	-1.307	-0.9	-1.106	-1.7	-1.020	-1.6	-0.381	-0.6
Other minority	-0.213	-0.4	-0.202	-0.9	-0.436	-1.8	0.059	0.2
Region								
Northeast	0.154	0.5	0.038	0.3	-0.014	-0.1	-0.026	-0.2
South	0.018	0.1	-0.291	-2.7	-0.142	-1.3	-0.248	-2.2
West	0.124	0.3	-0.347	-2.3	-0.370	-2.5	-0.234	-1.5
High school measures								
Ability	0.0034	0.7	-0.0048	-2.5	-0.0067	-3.4	-0.0038	-1.9
Percentile rank in class	-0.0120	-2.6	-0.0024	-1.2	-0.0004	-0.2	-0.0027	-1.3
Academic program	-0.793	-2.5	-0.322	-2.4	-0.265	-2.0	-0.379	-2.8
Vocational-technical program	-0.840	-3.7	-0.200	-2.1	-0.024	-0.2	-0.128	-1.3
Family background								
Father's education	-0.0945	-1.7	-0.0708	-3.0	-0.0507	-2.1	-0.0399	-1.6
Mother's education	0.0690	1.0	0.0227	0.8	-0.0025	-0.1	-0.0861	-2.8
Father's occupation (SEI)	0.0061	1.1	0.0007	0.3	0.0020	0.9	-0.0037	-1.6
Mother's professional status	0.355	0.8	-0.451	-2.4	-0.435	-2.3	0.162	0.8
Mother's homemaker status	0.287	1.3	0.609	6.5	0.400	4.2	0.324	3.3
Number of siblings	0.0474	0.7	0.0916	3.1	0.0591	2.0	0.0383	1.3
R^2	0.022		0.079		0.059		0.057	
S	0.248		0.463		0.470		0.456	
F	2.0		12.7		8.7		8.6	
N	1634		2685		2543		2574	

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